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A Record
OF
FIFTY CONSECUTIVE CASES OF
PREGNANCY AND PARTURITION IN PATIENTS WITH CRIPPLED HEARTS.

A Paper read at Liverpool Medical Institution.

BY JOHN HAY, D.L., M.D. LIVERP., F.R.C.P. LOND.,
PROFESSOR OF MEDICINE, LIVERPOOL UNIVERSITY; SENIOR PHYSICIAN AND PHYSICIAN IN CHARGE OF HEART DEPARTMENT, LIVERPOOL ROYAL INFIRMARY; CONSULTING PHYSICIAN TO LIVERPOOL MATERNITY HOSPITAL;
AND
ELIZABETH HUNT, M.D. LIVERP.,
LATE SAMUELS RESEARCH SCHOLAR; LATE CLINICAL ASSISTANT TO THE HEART DEPARTMENT OF THE ROYAL INFIRMARY.

OUR object is to correlate the difficulties and dangers of pregnancy and labour with the disadvantages and disabilities of valvular disease of the heart. For the last five years we have watched and kept records of pregnant women suffering from valvular disease who have passed through our rest home and maternity hospital. In many instances they have subsequently been kept under observation at the Heart Clinic of the Royal Infirmary. We have also discussed with colleagues in the maternity hospital the various difficulties and problems as they presented themselves. It is more than probable that the type of case met with in the rest home and maternity hospital, and on which this record is based, is on the whole of a more serious nature than the average type of case.

Various Practical Problems.

The problem is one of considerable practical importance and confronts us in various ways: 1. Is marriage advisable in the presence of a crippled heart, depreciated either by valvular disease or by gross arrhythmia? 2. Should a pregnancy be terminated or allowed to go to full term? 3. If it is to be terminated, when and how? 4. If to full term, what can be done to help the heart during the stress of labour? 5. After the birth of the child how is the patient to be managed?

Pregnancy and labour, even under normal conditions, place the heart under strain. It is essential that we should fully appreciate the nature of this strain when considering the reaction of a crippled heart to pregnancy. The circulation is embarrassed in three ways: 1. The weight of the patient increases. The work of the heart varies with the weight of the individual. 2. The placenta, the large uterus with hugely dilated vessels, the growing breasts, all make extra demands on the maternal heart. 3. The large uterine tumour after the sixth month interferes with the movements of the diaphragm; there are changes in the shape of the chest; the circumference increases; the costal angle widens; the heart is pushed up and out. In later months the bases of the lungs are compressed. Pressure shows itself in varicose veins, piles, and œdema.

Many of these effects are more noticeable in a primigravida, and there is gradual increase in the difficulties and discomforts as pregnancy advances. The crucial test, however, is the hour of deliverance.

The period of dilatation, from the commencement of labour until the cervix is completely dilated, does not put a severe strain on the heart, although the pains may cause a condition of general exhaustion, especially if the first stage is unduly prolonged. There is both general and nervous exhaustion, and pain, fatigue, and sleeplessness are the detrimental factors.

The period of expulsion, from complete dilatation of the cervix until the birth of the child, is the important phase. With each pain the patient braces her body, gets her feet against something solid, takes a deep inspiration, closes the glottis, and makes forcible straining movements with the abdominal and respiratory muscles, accompanied by a grunt. Her face becomes congested and may be covered with sweat. In a patient with valvular disease cyanosis is frequent. As the pain subsides the glottis is opened and respiration re-established. During each pain the arterial blood pressure is raised and the heart quickens. Prolongation of this stage may cause very great physical and cardiac exhaustion.

Between the birth of the child and the birth of the placenta there is a sudden drop in the blood pressure. The patient may collapse and there may be severe hæmorrhage.

I think it will be readily admitted that pregnancy and labour do throw a definite strain on the heart, a strain which may be very great if labour is unduly prolonged, and in which the reserve power of the heart is called upon to meet the stress. The crippled heart is less equal to meet this severe call on its powers. Three points must be remembered: 1. In rheumatic valvular disease the myocardium is probably damaged as well as the valves. 2. In mitral stenosis, the commonest lesion: (*a*) the output of blood per minute is considerably diminished, and is probably not more than 2 to 5 litres; (*b*) there is persistent engorgement of the alveolar walls, and an engorged alveolar wall is inelastic; (*c*) there is frequently emphysema, especially in the long-standing cases, with the inevitable dependence on free movement of the diaphragm. 3. Auricular fibrillation is a grave handicap to any heart and a very serious additional load in pregnancy and labour. It is probably the most disastrous of all the cardiac disabilities in labour.

Bearing these facts in mind it is clear that in pregnancy and parturition there is an increased liability to cardiac failure, and it is this liability which has to be met and diminished by careful supervision and treatment.

Evidences of Cardiac Failure.

A mild degree of *dyspnœa* is usually a feature of the last month or two of every pregnancy. In cardiac cases it manifests itself earlier, especially in those with emphysema. It may become excessive, preventing recumbency and interfering with sleep.

Pain is not common, but there may be an ache over the cardiac thrust.

Œdema of the bases of the lungs is suggestive of commencing cardiac failure.

A steady increase in pulse-rate, progressive venous engorgement and cyanosis are clear and important danger signals.

The extent and severity of symptoms must be the guide to management.

Table I. shows the very large preponderance patients suffering from mitral stenosis.

TABLE I.—*Classification of Cases.*

Congenital heart	1
Mitral stenosis—	
Moderate degree	20
Advanced degree	15
Mitral stenosis and aortic regurgitation	7
Aortic regurgitation	2
Auricular fibrillation—	
With advanced mitral stenosis	4
" " and aortic regurgitation	1
Total	50

Of these: Primipara, 13; deaths, 3. Multipara, 37; deaths, 2.

TABLE II.—*Ætiology: In 26 Cases of V.D.H. in Pregnancy.*

	Age at onset.	No.	
Chorea	8 to 20	9	21
Chorea and rheumatic fever	8 to 15	3	
Rheumatic fever	15 to 25	3	
Rheumatic pains	11 to 16	3	
Growing pains and sore-throats	—	2	
Acute rheumatism	26	1	
Scarlet fever	12	1	
Scarlet fever and muscular rheumatism	6	1	
Scarlet fever and growing pains	—	1	
No history of any illness	—	2	

The ætiology was carefully investigated in 26 patients, and was interesting from the cardiological

point of view. It demonstrated the preponderance of chorea and rheumatism as the primary cause of valvular disease. In several instances there were acute rheumatic manifestations after parturition.

The Frequency of Hæmoptysis.

We noted a peculiar liability to hæmoptysis among pregnant women, and our records showed that it occurred in 30 per cent. Of the 38 cases of mitral stenosis 11 suffered from hæmoptysis; of 8 cases of mitral stenosis and aortic regurgitation 2 suffered from hæmoptysis; while 2 out of the 4 cases of auricular fibrillation combined with mitral stenosis suffered from hæmoptysis. It is noteworthy that the tendency is for the hæmoptysis to occur in the earlier months of pregnancy, before the uterine condition can be said to have interfered mechanically with the circulation. Records of 75 non-pregnant patients suffering from mitral stenosis in the wards of the Royal Infirmary showed that the incidence of hæmoptysis in this series was 22·7 per cent. Cowan and Ritchie give 17·6 per cent. for hæmoptysis in cases of mitral stenosis. Table III. gives details of these 75 patients.

TABLE III.

—	No.	Hæmoptysis.	Remarks.
Mitral stenosis	25	6	Three of the 6 cases were admitted with acute cardiac failure, dropsy, &c. One had subacute infective endocarditis.
Mitral stenosis and aortic regurgitation.	9	3	One of the 3 died of subacute infective endocarditis, and in 1 there was terminal thrombosis of right jugular vein.
Auricular fibrillation and mitral stenosis.	41	8	Four of the 8 were admitted with acute cardiac failure. Another died. In a sixth X rays reported T.B., but no T.B. was found.

It is obvious that in this series the cardiac disease was graver in type than that found in the pregnancy series, so that I think there can be no doubt that we have a definite predisposition to hæmoptysis among pregnant women with mitral stenosis.

Auricular Fibrillation.

Auricular fibrillation does not in itself justify induction until specific treatment with digitalis has been given a full trial and has failed. In this series there are five patients in whom fibrillation was present, with one death—a death not due primarily to the cardiac condition, but to the associated grave kidney disease. In this woman induction was performed at 36 weeks and the patient died of uræmia. In the remaining four labour was normal, precipitate in one, and premature in another. All were patients suffering from advanced mitral stenosis, and had been under careful supervision and treatment during the later months of pregnancy, and I have no hesitation in saying that it was to this that they owed their lives.

In one of the four full doses of digitalis had steadied the heart and everything was progressing favourably until the patient returned home and ceased taking any medicine for nine days. She returned to the maternity hospital with the onset of labour, in great cardiac distress with a heart-rate between 140 and 150. She received great benefit from the intravenous injection of strophanthin, which acted with sufficient rapidity to control the heart before the onset of the second stage.

Dr. Leyland Robinson recently reported the deaths of four patients admitted urgently for delivery, suffering from auricular fibrillation that had received no treatment previous to admission. This indicates the increased risk to life when untreated auricular fibrillation is present. He later [1] reported 18 cases of pregnancy complicated by auricular fibrillation, which had not received adequate antenatal care. Many of them were frankly emergencies. Of these 13 died and, with two exceptions, death was immediately related to labour. Herrick [2] records three patients with valvular disease and auricular fibrillation in a series of 40 patients; one had a normal labour, and in two he procured therapeutic abortion at the second and third months respectively. The outlook in patients suffering from auricular fibrillation depends on the results of specific treatment with full doses of digitalis, and the careful supervision of the terminal months of pregnancy, and assistance during the second stage of labour. It depends also on the degree to which the fibrillation is distressing and handicapping the heart. In this hearts vary. As soon as the child is viable any sign of progressive cardiac failure justifies intervention.

Termination of Pregnancy: Induction v. *Cæsarean Section.*

This raises the question of the relative value of induction and Cæsarean section. In Table IV. patients are classified according to the nature of the termination of pregnancy.

TABLE IV.—*Manner in which Pregnancy Terminated.*

13 primipara with 3 deaths; 37 multipara with 2 deaths.

Natural Forces (28)—		
Congenital cardiac		1
Mitral stenosis:	moderate	13
,,	advanced (D)	6
Mitral stenosis and aortic regurgitation		2
Aortic regurgitation		2
Auricular fibrillation and advanced mitral stenosis		4
Forceps (3)—		
Mitral stenosis:	moderate	1
,,	advanced	2
Induction (13)—		
Mitral stenosis:	Moderate	3
,,	advanced (D)	4
Mitral stenosis and aortic regurgitation		5
Auricular fibrillation, advanced mitral stenosis, and aortic regurgitation (D)		1
Cæsarean (5)—		
Mitral stenosis:	moderate	3
,,	advanced (D)	2
Undelivered (1)—		
Mitral stenosis:	advanced (D)	1

It is not easy to determine the relative value of induction and Cæsarean section, and each case has to be decided on its merits. The first aim is to empty the uterus with the least strain to the mother's heart; the second is to obtain a living child when possible, even by a post-mortem Cæsarean section. Prof. Blair Bell emphasised the following points:—

1. "All other things being equal, induction of labour is a less severe procedure than Cæsarean section.
2. If there is any considerable degree of contraction of the pelvis Cæsarean section should be considered: (*a*) from the point of view of the child; (*b*) from the point of view of long and difficult labour even after induction.
3. Induction should be practised three to four weeks, before the expected date of parturition, if the full benefit is to be obtained for the mother.
4. A grave difficulty arises in the presence of a break in compensation associated with œdema. Both procedures become more grave, and it might be necessary to put aside induction, because of the extensive œdema of the vulva. In these circumstances one might be compelled to do a Cæsarean section with spinal anæsthesia.

These are, of course, general remarks; every case must be considered absolutely on its own merits; fatness, thinness, multiparity, and so on, influence the decision."

Bellingham Smith,[3] of Guy's, comparing the dangers of induction with those of labour, says:—

"Induction, if anything, is a more serious trial than labour at term, and I hold the view that those patients who would survive induction would pass equally well through labour at full time, and that those who appeared likely to die in the course of labour were equally as likely to die as the result of induction."

The matron of the maternity hospital, who has had a very wide experience, has been impressed by the easy labour following induction in most cardiac patients. The actual strain to the mother is probably less with a Cæsarean section, but there is greater distress and discomfort during the subsequent week or ten days. The convalescence is not infrequently painful and the sleep disturbed. On the other hand, Cæsarean section saves the heart from the strain of the second stage of labour with its obvious risks, and

[1] THE LANCET, 1927, i., 170.

[2] Amer. Jour. of Obstet. and Gynecol., 1922, iv., 83.

[3] Brit. Med. Jour., 1925, i., 442.

if desirable the woman can be sterilised. This is sometimes deferred to the second Cæsarean section. My impression is that the induction of labour is the wiser course unless there is a clear indication that, from any cause, labour is likely to be long and difficult and the viability of the child is in question. It is generally agreed that induction is more easily induced and less of a trial in a multipara than in a primigravida. If Cæsarean section is carried out under general anæsthesia there is the danger of subsequent vomiting and of bronchitis or broncho-pneumonia—serious complications in a patient with advanced mitral stenosis. Fortunately spinal anæsthesia can be used to obviate the risk. The best general anæsthetic is ether or ethanesal as a vapour, warmed by Shipway's apparatus and accompanied by oxygen.

The Fatal Cases.

In this series of 50 consecutive cases there are five deaths, and it was a little disturbing that the first and second patients in the series both died. It is significant that there was no death from acute cardiac failure of the ordinary type during or immediately after labour. A short epitome is given below of the five fatal cases.

CASE 1.—Aged 24; multipara. Advanced mitral stenosis. Large heart. Left rest home after five weeks treatment, free from œdema. Five days later, normal labour, eight months' child. On tenth day got up and œdema returned. Death 24 days after labour. Cause unknown.

CASE 2.—Aged 30; multipara. Mitral stenosis and aortic regurgitation. Fifty-four days before labour sudden onset of auricular fibrillation followed by acute cardiac distress. Temporarily controlled by intravenous strophanthin and digitalis. Signs of nephritis. Condition became critical. Induction thirty-second week. Anuria and death from uræmia 20 hours after delivery. Autopsy: "Large white kidney."

CASE 32.—Aged 35; primipara. Advanced mitral stenosis; slight regurgitation. Parenchymatous nephritis. Cæsarean section at 31 weeks. Died three days later, comatose; uræmia.

CASE 46.—Aged 21; primipara. Advanced mitral stenosis; slight regurgitation. Clinical signs of nephritis, slight and atypical. Died suddenly undelivered at 36 weeks from acute pulmonary œdema. Autopsy: "Acute parenchymatous nephritis."

CASE 48.—Aged 29; primipara. Advanced mitral stenosis. Premature labour at 34 weeks. Clinical signs of acute parenchymatous nephritis more marked after labour. On eighth day insisted on leaving hospital. Died thirteenth day after parturition.

There was no evidence of nephritis in the earlier stages of pregnancy. An autopsy was obtained in two of the four patients and, in the opinion of the pathologist, the nephritis was of recent origin.

Damaged Kidneys.

The toxic albuminuria of pregnancy sometimes proceeds to marked degeneration or even necrosis of the renal parenchyma. There is also the "nephritic toxæmia" of pregnancy, which may be the result of the deleterious toxic effects of pregnancy upon a kidney already pathological. In such patients the symptoms appear early in the pregnancy. The four patients in our series do not conform to either of these groups. Nor do they, in the details of their symptomatology, fall accurately into line with the usual examples of acute or subacute parenchymatous nephritis. It would appear that a woman with advanced mitral disease is liable to develop an atypical form of parenchymatous nephritis as a result of pregnancy, and that this manifests itself late in pregnancy and greatly increases the gravity of the outlook. It is significant that in four of the five fatal cases there was grave kidney damage, and I have no doubt that this rather than the valvular disease was the determining factor responsible for death. The combination of mitral stenosis with chronic nephritis is well known, and is more common in women than men. Pregnancy may be the determining factor in this preponderance.

Management after Labour.

Pregnancy and parturition cause less permanent damage than one would expect. It is remarkable how satisfactorily most cardiac patients progress after labour is past, if they have been carefully piloted through the difficulties and adequately treated before, during, and after labour.

Unassisted labour at full term in a decompensated heart (even if the patient survives) will probably leave the heart permanently less efficient. Patients with advanced aortic regurgitation are especially liable to suffer, but moderate grades of aortic regurgitation with a good myocardium tolerate labour well.

Since there is, after labour, a risk of permanent depreciation of the heart muscle, great care should be taken to enable the myocardium to recover fully before allowing the patient to return to the ordinary stress of life. A long period of rest must be enforced. Any anæmia should receive prompt and adequate treatment.

It is not unusual for a woman to put on weight rapidly after the birth of a child. For this there are probably several reasons, one of which is a condition of hypopituitarism, which may result from the over-activity of the pituitary during pregnancy. This increase in weight is a real danger to a woman with a damaged heart. Obesity must be prevented or treated, for as everyone knows, the work of the heart bears a definite relationship to the weight of the body.

In our experience there is no valid objection to lactation; in fact our patients appeared to do better when suckling. The artificial feeding of a child entails more labour and strain on a heart than the normal method.

Survey of General Conduct.

Pregnant women with diseased hearts must be treated primarily as cardiac patients, and the first indications of cardiac failure noted. They must be under regular medical supervision throughout. Among the poor an antenatal clinic and a rest home are of the very greatest value. In every patient the reserve power of the heart must be increased by adequate rest and symptomatic treatment. Rest is essential, more especially in the four to six weeks before labour. Dyspepsia, flatulency, constipation, insomnia, bronchitis, and other discomforts must be remedied. If there is auricular fibrillation it must be controlled with digitalis and the optimum dose found and maintained. Any woman with auricular fibrillation must be kept under constant supervision.

During labour the aim is to lessen the nervous and physical exhaustion of the first stage and to diminish the physical strain of the second stage. Light anæsthesia during the second stage is helpful, and narcotics are valuable; they reduce the voluntary effort. An early resort to instrumental help is most important.

In the earlier months cardiac failure which refuses to respond to treatment justifies immediate intervention, especially if there be persistent retching and vomiting. At times there is a peculiar and unexplained cardiac failure in earlier months—certainly not due to mechanical causes—which resists treatment and is only relieved by terminating the pregnancy. Induction, however, should never be attempted until compensation has been restored as far as possible by rest and drugs. The stress of labour is likely to prove fatal to a woman whose heart is already struggling with difficulty to maintain the circulation.

Experience has shown that the majority of women with crippled hearts, in whom the cardiac reserve is good, are capable of pregnancy and labour without any great additional risk. This is especially true if the cardiac lesion is not progressive and if there is no history of a previous cardiac breakdown. There is admittedly an increased risk, but it is one that many women are prepared to take and which is not unreasonable under constant supervision. In multiparæ a knowledge of the manner in which the previous pregnancy was tolerated is an excellent guide.

Veto on Child-bearing.

The mere presence of mitral stenosis or even aortic regurgitation, the occurrence of premature beats, the existence of cardiac pain and tenderness over the cardiac thrust, and the presence of cardio-respiratory bruits, do not in themselves justify a childless

marriage. So long as the cardiac reserve is good, so long as the response to effort is satisfactory and there is no undue enlargement of the heart, the presence of valvular disease is no bar either to marriage or pregnancy. When, however, there is a clear history of cardiac failure and distress during a previous pregnancy, and if it is known that after labour convalescence was unduly prolonged, owing to cardiac weakness, then a definite veto must be given. Such a decision is all the more imperative if the cardiac distress had increased as pregnancy progressed and become urgent and alarming during the act of parturition.

The same opinion is justifiable in cases with auricular fibrillation; advanced mitral stenosis, as shown by a large heart, a long diastolic bruit, and small cardiac reserve; and advanced aortic regurgitation with a big heart, Corrigan's pulse, and defective reserve.

It is the borderland cases that present the greatest difficulty. In them any abnormality in the pelvis likely to prolong labour becomes of very great importance.

A pregnant woman who is aware of her cardiac disability should be reassured. Too often the risks are unduly stressed, and her pregnancy is overclouded by fear and apprehension—an apprehension frequently aggravated and intensified by a fussy spouse. The necessity for careful supervision must be emphasised, and the importance of rest and sensible behaviour discussed with her quite freely. Motherhood is woman's peculiar privilege and prerogative, a privilege which we have no right to refuse her without adequate reason.

Pregnancy inevitably entails certain risks, which a woman accepts in order that she may have a child. A crippled heart is an added risk, and it may be an unjustifiable risk. But the more I have studied these patients the more I have been impressed with the wonderful manner in which their hearts have responded to care and treatment during pregnancy. I believe that a woman with valvular disease is entitled to know to what extent the normal dangers of pregnancy are increased by her cardiac lesion, and if she is prepared to face the ordeal, then we must do all we can (and we can do a very great deal) to minimise the dangers of pregnancy and parturition by constant supervision and prompt and efficient treatment—both medical and surgical.

A CRITICAL EXAMINATION OF SOME CASES OF A SCARLATINIFORM TYPE.*

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Historical.

To Sydenham is due the differentiation of scarlet fever from morbilli, and only comparatively recently has rubella been recognised as a distinct disease; as late as 1895 Donald Hood, among others, inclined to the view that rubella as a separate entity did not exist. In 1884 Filatow observed an epidemic in one family which he thought was an abnormal form of scarlet fever, and told the parents that their children would, as a consequence, be protected against this disease. But in 1885 scarlet fever attacked three of the children who had been affected in the previous epidemic. He then described, under the name of scarlatiniform rubella, an infectious disease, acute, contagious and epidemic, characterised by a scarlatiniform rash, but distinguished by the mildness of its course and other peculiarities. In 1886 he abandoned this view and thought he had to deal with an ordinary rubella with a polymorphic rash, but later still he inclined to the view, formulated by Lebert in 1851, that morbilliform rubella and scarlatiniform rubella should be considered two distinct diseases. In 1894 Dukes published an instructive paper on the features which distinguish epidemic roseola (roseola) from measles and from scarlet fever. In 1900 he published in THE LANCET his paper on the fourth disease.[1] In 1901 Weaver (M.O.H., for Southport) in a paper published in the Dublin *Journal of Medical Science*,[2] described several cases occurring in the Borough Fever Hospital in 1900.

In THE LANCET (1900, ii., 289) Sir William Broadbent stated that he accepted "without hesitation the differentiation of rubella into two distinct diseases which Dr. Clement Dukes has made." Drs. Kidd and Romer also supported this view, while abroad, Trammer, Bokai, Ruhemann, Unruh, Ardin Delteil, and Chenisse all reported epidemics resembling Filatow-Dukes disease. My own experience of some 73 cases fully agrees with the accounts published by Dukes and Weaver, and, as far as it goes, the description given by Filatow, and I am convinced that these cases are not aberrant forms of either scarlet fever or rubella. Dr. H. Aldersmith, my predecessor at Christ's Hospital for 44 years, saw several small epidemics and was definitely of the opinion that Dukes was right. On the other side, in most modern text-books, fourth disease is usually only alluded to when discussing the differential diagnosis of scarlet fever and rubella. J. D. Rolleston, in his book published in 1925,[3] gives an account of it under its own name, but sums up against it as a separate entity. Prof. Teissier, of the Paris Faculty of Medicine, gives a good account of the discussions that had arisen around it in his book on infectious diseases published in 1922,[4] but sums up against Dukes, though he makes no mention of any personal experience of the disease.

In favour of the separate entity many authorities state that the diagnosis of rubella is often difficult owing to the variety of type of rash or to the indefinity of incubation, while the Code of Infectious Diseases in Public Schools, first published in 1886 by the Medical Officers of Schools Association, has in all its eight editions stressed the difficulty of diagnosis in scarlet fever.

In January, 1920, Dr. C. R. Box[5] wrote to THE LANCET describing certain cases which were then being sent to the London Fever Hospital as scarlet fever, but which were in his opinion atypical, and contrasted these cases with those described by Dukes as fourth disease. His letter was headed, Is there a Para-scarlet Fever? A short correspondence ensued from this letter which neither advanced nor disproved the thesis. On August 19th, 1922, Dr. K. Simpson,[6] in an article in THE LANCET, described a series of cases admitted to the Croydon Borough Hospital. Fifteen cases occurred in a diphtheria ward, apparently from a convalescent diphtheria patient who was found to be desquamating, and about the same time thirteen or more cases were discovered among the admissions to the scarlet fever wards. He gave the apparent incubation among the diphtheria patients as "about three days," but otherwise his description of the symptoms and the rash agrees practically word for word with my records of the cases I have called para-scarlet A. For the sake of brevity I have drawn up a table of different diagnosis for morbilli, scarlet fever, para-scarlet A and B, and rubella. He concludes with these words:—

> "There would seem, finally, little or no justification for including the above series of cases as falling within the province of rubella any more than within the hazy and ill-defined boundaries of a so-called fourth disease, whilst the distinctness of the type from ordinary scarlet fever is practically certain. Although it is not pretended that the foregoing remarks are at all exhaustive of the several exanthematous conditions which have from time to time been described under the name of a fourth disease, it yet seems justifiable to conclude that mild scarlet fever, possibly, and as suggested of the nature of a para infection, may be responsible for many instances of an exanthematous outbreak resembling scarlet fever but described as a 'fourth infection.'"

In THE LANCET (1923, i., 950) there appeared an article by Dr. H. M. Raven,[7] describing a series of 12 cases which occurred in a school of 80 girls and staff, as an epidemic of fourth disease, with which diagnosis I was inclined to agree when I first read his

* A paper read before the Fever Group of the Society of Medical Officers of Health on Nov. 25th, 1927.

article in MSS., but on re-reading it in print I am bound to confess that the evidence seems to favour very decidedly the diagnosis of scarlet fever. The occurrence of albuminuria and secondary enlarged glands, and especially the fact that the second batch of cases occurred six days after the return of the maid (who had tonsillitis seven days before the first batch) from sick leave, is strongly suggestive of scarlet fever. On the other hand, three of the staff subsequently developed the disease 18–20 days after the second batch of girls, and another girl was taken ill at home 20 days after the first batch and diagnosed independently as mild rubella. The case can undoubtedly be argued either way without the possibility of a definite conclusion.

The historical ground, therefore, proves that I do not need an excuse for the subject of this paper. Indeed, I think that when the clinical facts of the fourth disease are fully and fairly considered there is ground for maintaining that it is a separate disease, and I suggest that there are probably two forms of this pseudo-scarlet fever, and that when all the facts are considered they will be found to be to scarlet fever what the para-typhoids are to enteric fever.

Experience at Christ's Hospital.

During the 14 years I have been medical officer to Christ's Hospital Boys' School at Horsham I have seen and treated about 1200 cases in which rashes of a morbilliform or scarlatiniform type were present. 1044 of these were definite cases of exanthem, and the remainder include food or drug rashes, urticarias, and eczemas. Before 1916 I was familiar with Dr. Clement Dukes's description of fourth disease, but had never to my knowledge seen a case.

Between September, 1913, and March, 1916, there occurred at Christ's Hospital six cases of definite scarlet fever in two batches of five and one respectively; one batch of six cases of doubtful rubella, and 109 cases of definite rubella in six batches, the largest being an epidemic of 82 cases in the summer of 1915, when also the single case of scarlet fever occurred. There were also 15 cases of rubella, coincident with five cases of scarlet fever in the Lent term of 1915. With these exceptions all the cases occurred in small batches, presented no difficulties in diagnosis, and were easily stopped by early isolation, thorough disinfection, and the tracing of contacts where possible. Up to this date no rationing of food had come into force, and the outbreaks of exanthemata in the training camps all over the country did not start on any large scale until late in 1915 or early in 1916.

In the epidemic of 82 cases of rubella in the summer of 1915 I was struck by the fact that many rashes were erythematous from the start and never papular, and that none of the patients was ill in proportion to the amount of rash. As a rash of this type is described as the third variety of rubella rash I accepted them as such, though clinically some of the cases rather resembled mild scarlet fever. The incubation periods were unknown.

In the summer of 1916, however, a big epidemic of 204 cases occurred. This started at the beginning of term as ordinary rubella, and went on as a mixed epidemic of rubella, scarlet fever, and what I regarded then as fourth disease, to which I propose to allude below as para-scarlet A. In this epidemic, also, the incubation periods were difficult to make out, owing to the numbers and cross-infections which at first were unavoidable. According to my classification the cases were as follows:—

11 scarlet fever with	1	death, and	0	other cases of complication
45 para-S.F. A.	„ 1	„	8	
148 rubella	„ 0	„	0	

—i.e., a total of 204 cases with a mortality of 1 per cent, or 56 scarlatiniform cases with a mortality of 4 per cent.

There were no cases of cross-infection between scarlet fever and para-scarlet A. Two boys developed scarlet fever five and six days after admission with rubella, both probably, but not certainly, by cross-infection. Two boys developed para-scarlet A 15 and 34 days after admission with rubella. There was no possibility of cross-infection in either case. The first might have been infected with para-scarlet A just before admission, but the second must have been infected after admission, and it is to be noted that he developed para-scarlet A 15 days after the last definite case of scarlet fever.

Of	11	scarlet fever cases	none	gave a previous history of	scarlet fever or rubella.
„	45	para-scarlet	3	gave a history of recent	rubella.
„	45	„	3	„ „ „	scarlet fever.
„	148	rubella	1	„ „ „	rubella.
„	148	„	4	„ „ „	scarlet fever.

Dr. F. A. Juckes, of Horsham, and Dr. Rawdon Wood, then acting M.O.H., saw several of these cases of para-scarlet A, and both agreed that they were not at all typical scarlet fever cases. The latter told me that he had had two outbreaks with similar cases among troops near Brighton that year. Other cases were reported at Aldershot.

The following term there were five isolated cases of para-scarlet. The first occurred eight days after the school returned, and I am satisfied that infection was acquired during the holidays, but there was one boy isolated in the infirmary from the epidemic of the term before. There was no possible direct contact with him, and indirect contact was practically out of the question, as he had his own nurse and was on the top floor of the building, and the new case had not visited the infirmary before coming over with para-scarlet. I mention this as it will be noticed that the cases of para-scarlet occur in three groups, each group involving two consecutive terms. In the winter 1920—Lent, 1921, group the second batch occurred two months after term had begun. Although in the Lent-summer, 1922, group the second batch began with a case seven days after the beginning of term, and the four cases the previous term occurred at the end of term, if the house incidence and class contacts are ruled out, as they can be, there is no reasonable doubt that this too is an infection acquired during the holidays and not a reinfection at the school.

From the winter term of 1916 to the winter term of 1920 there were no cases of scarlet fever or para-scarlet, since when there has been one epidemic of scarlet fever with 15 cases, and four small outbreaks of para-scarlet A. There has been one large epidemic of rubella since the Lent term 1917. The two epidemics described below illustrate the importance of the incubation period and the difficulty of diagnosing a severe and fully developed case of para-scarlet from scarlet fever.

Winter, 1922.—Fifteen cases of mild scarlet fever, except that one boy had simple endocarditis. There were definite contacts in each case, the longest incubation being six days. The epidemic began from a boy who proved to be a carrier after a mild unrecognised attack during the holidays. He infected three boys after being back at school 15 days. The first case came in on Sept. 29th, just 15 days after the beginning of term. His was a very mild infection, and the possibility of a 15-day incubation made the diagnosis between mild scarlet fever and para-scarlet A difficult, until another case occurred, as his rash was fully out on admission. Two more boys from the same house came in on Oct. 4th (six days later), also very mild in type. The same evening I examined every boy in the house and found that the monitor in the same dormitory as the two last boys was peeling on both feet in large flakes. (Being a monitor he had been allowed, unofficially and unfortunately, to escape the matron's inspections.) I isolated him at once, and next day found a small slough hidden between the right tonsil and the posterior pillar of the fauces. A swab from this gave a growth of a hæmolytic streptococcus in large numbers. On cross-examination he gave a history of having been at various camps all August, and of having felt ill one day with a slight sore-throat on returning home in the first week of September. He had noticed that his hands peeled slightly about a week after, and his feet began to peel about the time he came back to school—i.e., about 14 days after the throat. This history would do very well for para-scarlet A, and at first sight the apparent incubations of the three cases would support this, but on further inquiry a definite single contact with the first boy, dating three days before his illness, was discovered, and the carrier was found to have been in closer contact with the other two in the dormitory during the second week than during the first week of term. This supported the diagnosis of scarlet fever and the subsequent cases gave definite house

TABLE OF DISTINGUISHING FEATURES.

—	Morbilli.	Rubella.	Scarlet fever.	Para-scarlet A. (Fourth disease.)	Para-scarlet B. (Epidemic roseola of Dukes.)
Incubation.	10 days to prodromata. 13–14 days to rash, body. 10–16 days extreme limit.	No prodromata. 12–16 days to rash. 14–15 average.	1–6 days. 4 average.	(?) 8–12 days. 10 average.	12–16 (? 22) days. 14–15 average.
Prodromata.	Fever with remissions. Coryza. Sneezing. Cough at first hard and dry. Malaise 2 or 3 days.	Usually no fever. Occasionally sneezing; slight sore-throat.	Continued fever. Vomiting. Sore-throat. Headache and pain in back and limbs. Sometimes rigor.	Fever unusual. Occasionally slight sore-throat or headache. Often entirely absent.	Usually entirely absent.
Temperature.	101–104 or more. Often remits. lasts 4–8 days.	Often none. May be 103. If present always remits. Lasts 1–3 days.	101–103 mild cases. 103–106 severe. Usually continued. Lasts 4–8 days.	Often none. May be 104. Usually normal or 99 in 24 hours.	Usually none or 99, and normal in 24 hours. Occasionally high.
Pulse.	In proportion to fever.	Unaffected.	Much out of proportion to fever.	Often unaffected, if quick, not in proportion to fever.	Usually unaffected
Malaise.	Considerable.	Usually absent.	Considerable.	Usually absent, if present is very short. (*See A at foot.*)	Usually absent.
Eyes.	Red, watery, with marked photophobia.	Pink, but without any photophobia as a rule.	Bright.	Usually unaffected.	Unaffected.
Mouth.	Koplik's spots appear 2 days before rash on body in 75 per cent. of cases.	Rash appears on soft palate at the same time as on body.	Gums injected, but no typical rash.	Mucous membrane, as	a rule, unaffected.
Throat.	Tonsils and palate red and swollen.	Tonsils red but not septic.	Tonsils dark red like raw beef. Sloughy or follicular.	Tonsils red, usually not so sloughy as in S.F.	Tonsils usually unaffected.
Nose.	Occasional epistaxis.	Epistaxis rare.	Epistaxis rare. Nose clean.	Epistaxis common. Nose and sinuses blocked with thick pus often from onset.	Epistaxis rare. Nose clean.
Tongue.	Thick white fur. Rarely peels.	Normal or slight fur. Never peels.	Covered at start with thick yellowy-white fur (white strawberry) through which the enlarged papillæ show red. In 4 to 5 days peels from edges and tip, backwards (red strawberry).	Moderate fur or normal. Papillæ may be enlarged. If furred peels quickly on 2nd day. Not typical strawberry.	Usually unafected.
Glands.	Cervical, swollen, tender, seldom suppurate. Body, unaffected.	Cervical, chain of posterior glands enlarged, may be hard or soft. Often not tender. Axillary and inguinal often affected.	Tonsillar and anterior cervical, large and tender. There may be a good deal of periadenitis and even suppuration. Often there is a secondary adenitis during convalescence. Body not affected.	Tonsillar enlarged. Often not tender. Never suppurate. Axillary and inguinal sometimes affected.	Usually none affected.
Rash.	Appears 3rd to 4th day in the mouth; 2nd day (Koplik's spots). After the mouth appears on face and behind ears, then generally on body and limbs. Consists of red papular dots which enlarge and coalesce into irregular crescents and patches. May resemble urticaria in pressure areas. Brick-red at first, then dusty. Skin stained after rash has gone.	Appears usually first day of disease. Often is first thing noticed. Usually first on face and chest, spreading thence to body and limbs. Often coalescing to resemble in parts the rash of morbilli. The typical rash consists of discrete rose-red papules. If profuse, skin may be left stained.	Appears usually 1st to 2nd day of disease. Begins on chest and then spreads in regular order over trunk and limbs from above, downwards. Never on face, soles, or palms. Circum-oral pallor is marked. Is a diffuse punctate erythema. Skin is markedly hot to the touch.	Appears 1st to 4th day of disease. May be first thing noticed. Usually begins over lower abdomen and upper and inner thigh area; then inside knees and ankles. May spread thence irregularly over body. Face often puffy but not definitely erythematous. Palms and soles may be involved. Is a diffuse erythema occasionally punctate, especially over pressure areas.	Resembles in general features distribution and onset, that of para-scarlet A. but is usually much less intense and often large areas of the body are unaffected.
General constitutional symptoms.	In proportion to the amount of fever and rash.	Usually slight.	In proportion to the amount of fever and rash.	Markedly slight in proportion to fever and rash.	Usually very slight.
Desquamation.	Branny.	Branny, if any.	Usually complete and massive. On tongue from 4th to 8th day. On body commences as a fine peach bloom below clavicles about 8th day, followed by fine desquamation spreading thence over trunk and limbs. (*See B.*) Lasts 8–28 days or longer.	Occasionally absent. When present tongue peels completely in 1–2 days, usually on 2nd or 3rd day of disease. On body, varies fromnone, to slight branny, to shreds, but is not "glove" or typically "pin-point." Lasts 1–3 weeks, may be longer.	Tongue never. Body usually absent; if it occurs, resembles that of para-scarlet A.
Period of infectivity.	From start of prodromata (at maximum before rash is out on body) for about 14 days, if throat, ear, and kidney are then clear.	Over with rash. Maximum before rash is out.	Probably from start of prodromata (maximum during 1st week) till end of 3rd week if throat, ear, and kidney are then clear.	Probably from start of prodromata (maximum before rash is out on body) for about 10 days if throat and sinuses are then clear.	Over with rash. Maximum before rash appears.

A = Patient feels well and can read books even with considerable fever, in striking contrast to condition in S.F.
B = Later on scales and shreds, especially on limbs; "glove" peeling on hands and feet, and "pin-point" on trunk and limbs distinctive.

TABLE OF COMPLICATIONS AND SEQUELÆ.

—	Morbilli.	Rubella.	Scarlet fever.	Para-scarlet A. (Fourth disease.)	Para-scarlet B. (Epidemic roseola of Dukes.)
Kidneys.	Transient albuminuria rarely during fever. Nephritis very rare.	Transient albuminuria very rare. Nephritis never.	Transient albuminuria during fever common. Nephritis fairly common.	Transient albuminuria during fever rare. Nephritis very rare, if ever.	Transient albuminuria very rare Nephritis never.
Lungs.	Bronchitis practically a symptom of the disease: (*See C.*)	Nil.	Pleurisy, especially after pneumonia, if this occurs.	Nil.	Nil.
Heart.	Rarely affected.	Never.	Endocarditis, simple, not uncommon; infective, uncommon. Myocarditis, not rare.	Endocarditis, as in scarlet fever.	Never.
Middle ear.	Pneumococcal infection common.	Never unless previously affected.	Streptococcal infection common.	Infection uncommon.	Never.
Antra and frontal sinuses.	Pneumococcal infection occurs.	Not unless previously affected.	Antral and frontal sinus infection uncommon.	Antral and frontal sinus infection *common and early.*	Not unless previously affected.

C = Pneumonia and broncho-pneumonia common in some epidemics, apart from crowding, &c.

or class contacts of two to six days, confirming the diagnosis. The carrier and one other boy were said to have had previous attacks of scarlet fever in 1909 and 1916 respectively, but both at home. One boy had had rubella.

Summer, 1922.—Para-scarlet A. Seven mild cases, except for one boy who had had definite severe scarlet fever at home in 1912. In the present attack he was not at first very ill. His aspect was typical of severe para-scarlet A, nose blocked with muco-pus, voice thick, tongue not thickly furred, temperature high, but pulse-rate not in proportion to fever. The rash came out on the second day, first on the lower abdomen and groins, then knees and feet, and then all over. With this he did not at first feel very ill, but on the third day he suddenly became delirious and developed signs of meningeal irritation. He was then treated with several doses of polyvalent antistreptococcic serum, and thereafter steadily improved, being well out of danger in two days. Of the seven cases three had had definite previous scarlet fever, and one definite previous rubella. (Table II.)

TABLE II.—*Infectious Diseases occurring at Christ's Hospital, September, 1913 to July, 1923.*

Year and term.	Morbilli.	Scarlet fever.	Para-scarlet.	Rubella.	Pink-eye.	Year and term.	Morbilli.	Scarlet fever.	Para-scarlet.	Rubella.	Pink-eye.
1913.						1921.					
W.	26	—	—	3	—	L.	61	—	2 A	—	—
1914.						S.	—	—	—	1	—
L.	—	—	—	1	—	1922.					
W.	—	—	—	5	—	L.	—	—	4 ? B	—	—
1915.						S.	—	—	7 A	1	—
L.	21	5	—	15	—	W.	—	15	—	—	—
S.	1	1	—	82	—	1923.					
W.	—	—	6 ? B	—	—	W.	—	?2	—	—	—
1916.						1924.					
L.	—	—	—	3	—	S.	—	—	—	1	1
S.	—	11	45 A	148	—	1925.					
W.	—	—	5 ? B	—	—	L.	—	—	—	275	—
1917.						1926.					
L.	59	—	—	54	236	L.	142	—	—	9	1
S.	—	—	—	2	—						
1919.											
S.	27	—	—	—	—						
1920.						Total	337	34	58 A	600	238
W.	—	—	4 A	—	—				15 B		

1918.—Nil. L = Lent; S = Summer; W = Winter.

The epidemics of scarlet fever, para-scarlet, and rubella have only occurred together once—viz., in the summer term of 1916, when there were 148 cases of rubella, 45 of para-scarlet, and 11 of scarlet fever. Scarlet and para-scarlet occur in two groups; from the Lent term of 1915 to the winter term of 1916 scarlet fever occurred three times and para-scarlet three times, but only once coincidently. From the winter term of 1920 to the winter term of 1922 scarlet fever occurred once and para-scarlet four times, but not coincidently. Rubella occurred coincidently with scarlet fever three times in the first group, and with para-scarlet twice, once in each group. Table III. gives these dates graphically.

Rubella occurred in nine other terms unaccompanied by either scarlet or para-scarlet fever, the numbers in each epidemic being 3, 1, 5, 54, 2, 1, 1, 275, and 9. In none of these outbreaks were there any cases of

TABLE III.

Year.	Term.	S.F.	Para-S.	Rubella.
1915	Lent	5	—	15
	Summer	1	—	82
	Winter	—	6	—
1916	Lent	—	—	3
	Summer	11	45	148
	Winter	—	5	—
1920	Winter	—	4	—
1921	Lent	—	2	—
	Summer	—	—	1
1922	Lent	—	4	—
	Summer	—	7	1
	Winter	15	—	—

erythematous rash. Morbilli epidemics occurred four times in association with rubella and once with para-scarlet, and once alone, in the summer term of 1921, in the Preparatory School. In the Lent term of 1917 there was an epidemic of 59 cases of morbilli, together with one of 54 cases of rubella which was associated with 236 cases of pink-eye. This is the only epidemic of pink-eye I have seen in ten years. Other isolated cases have occurred from term to term, but it has never become epidemic, possibly because each case is now immediately isolated until cured. It is highly infectious, and I have often noticed occasional cases occurring during an outbreak of rubella.

In a school run on the lines of Christ's Hospital it is possible to trace out contacts in most epidemics until the third or fourth batch of cases, when the incubation periods become concurrent or overlap, as one can find out the movements and whereabouts of any boy for any hour of the day. My experience is that the dormitory and dayroom are more probable areas of infection than classrooms, with the exception of the art and manual schools, but that the tuck shop is a congregational danger-spot that unfortunately defies too often the efforts of the epidemiological detective. In 1916 I satisfied myself and the art master that infection was conveyed from boy to boy by pencil and paint-brush, and a system of routine disinfection with formalin was instituted and is still carried on. The para-scarlet epidemic of the summer of 1922 showed another unsuspected focus in the art models; it was proved that the two boys concerned here had not used the same tools, but had, in

consecutive periods, sat at the same table and used a common model.

Diagnosis of Para-scarlet A and Para-scarlet B.

The diagnosis from scarlet fever of the para-A variety is a matter of some difficulty and, with a first case, depends mainly on seeing the rash come out. The rash usually begins over the bathing drawers area and spreads from there both up and down very quickly. It spreads up the trunk to the neck and face, though the circum-oral and post-auricular regions often escape. It spreads irregularly down, appearing first at the inner sides of the knees and ankles, and from there over the legs and feet. The arms are usually invaded last. The other outstanding features are the very slight constitutional disturbance, as compared with the profuse rash, and the absence of the typical tongue and throat. The diagnosis of this variety from rubella presents less difficulty. The incubation period is from 8 to 12 days, usually 9 or 10.

The para-B form corresponds to the milder form of scarlatiniform rubella (the epidemic roseola of Dukes). Here the whole picture is very mild and the rash often indefinite and very patchy, large areas often escaping invasion. The incubation period is from 12 to 22 days, usually 14 or 15 days.

In four of the outbreaks of para-scarlet A, where it is possible to trace contacts, there were found to be known contacts between cases giving incubation periods of 9 to 15 days. It is hardly possible that an unknown S.F. carrier would be missed in four different outbreaks, or that if he were missed the epidemics would have stopped with so few cases. This suggests that we have to deal with a disease that in many respects resembles scarlet fever, but which differs from it in definite symptoms and which has an incubation of 9 to 15 days, or possibly longer. Either this disease is not scarlet fever or the incubation period of scarlet fever is longer than six days.

In Osler[8] the rash of rubella is described simply as papular; in Allbutt and Rolleston[9] as papular or pseudo-crescentic, and mention is made of an aberrant scarlatiniform type, but in all the school books dealing with infections that I have seen three types of rash are given: (1) the rose-red papule; (2) the crescentic morbilliform; (3) the erythematous or scarlatiniform. It is also stated that a constant sign is enlargement of the posterior cervical glands. Now I have never found a typical chain of enlarged posterior cervical glands in cases of the so-called erythematous type of rubella where the rash is erythematous from the start. In my experience the enlargement of these glands is most marked in the papular variety, and present, but less markedly so, in the morbilliform type of case. This is what one would expect if it is a defensive enlargement.

I believe that there is only one anatomical type of rash for any one acute infection, and it is my experience that in true rubella the rose-red papule is always present at first, but in moderately severe or serious cases it tends to become confluent in areas, giving the crescentic or morbilliform appearance. It is surely unscientific to expect the toxin of an acute fever to produce more than one type of rash. A mild dose of scarlet fever toxin dose not produce a morbilliform or rubelliform eruption; why, therefore, should the rubella toxin sometimes produce a scarlatiniform rash? Undoubtedly cases occur of a scarlatiniform rash associated with enlargement of all the cervical glands, but not especially the posterior, and these cases appear to have a long incubation of 15 or more days, with a possible maximum of 22 days, thus resembling the incubation period of rubella.

I suggest that these erythemata with longer incubation periods are para-scarlet B. The fact that three types of rash are described, and that so many names have been attached to the disease, is good evidence that there is a considerable diversity of opinion about rubella.

I suggest that there are two para-scarlet fevers and a scarlet fever, and not one scarlet fever, one fourth disease, and a third variety of rubella. The first two types of rubella, as commonly described, are, I believe, one—the papular which may become confluent. The third type I believe to be para-scarlet B. Thus we have:—

Scarlet fever	..	Incubation 1–6 days, commonly	3
Para-scarlet A (fourth disease)	..	,, 9–15 ,,	10
Para-scarlet B (scarlatiniform rubella)	..	,, 14–22 ,,	16

I also believe that the causative organism is a hæmolytic streptococcus, and I think there is an increasing body of evidence in favour of this view.*

Complications and Treatment.

Para-scarlet B is very mild and only requires rest in bed during the period of the rash, an initial purge, and a regular mouth-wash. A precautionary examination of the urine after the appearance of the rash is advisable.

Scarlet fever and para-scarlet A may be taken together. Severe cases of para-scarlet A can be much worse than the modern form of scarlet fever. It may assume a fulminating or malignant form, with death in a few hours from a massive dose of toxin. On the other hand, it may be very mild from the start. The complications of the para form differ markedly from those commonly associated with scarlet fever. Septicæmia and endocarditis may occur, but the commonest complication (almost a symptom) is a purulent infection of any of the accessory sinuses of the face, and very occasionally the middle ear. The two antra or the frontal sinuses are often attacked at the commencement of the illness, and require very frequent and active treatment. I have not seen nephritis or rheumatism either as an early or late complication in para-scarlet. Albuminuria is usually absent even in the acute febrile period. I use Milne's[10] method of inunction with eucalyptus oil combined with painting the fauces with 25 per cent. carbolic in glycerine, and so far I have found this perfectly safe in preventing the spread of infection, so much so that when pressed for room I nurse the cases in a small ward in the general block on the same floor as the general work. If the ordinary work is heavy it is wise to have a special day nurse to carry out the main treatment, but if it is not I let one nurse attend both infectious and non-infectious cases. I have not so far had a case of cross-infection under these conditions. The inunction is done all over twice daily during the first week or while the fever lasts, whichever is the longer, and then once daily for a second week. The throat is swabbed thrice daily at first, with a cotton-wool swab on a stick or glass rod and not with a paint-brush. The paint forms a clean scar over the mucous membrane and can be changed for a carbolic and potash gargle as soon as the throat is clear of exudate, usually in two days. It is important to prevent spread from the mouth and throat, and also from the ear, if there is any otorrhœa. Every case should have a nasal douche given with a soft catheter and funnel at least three times a day so long as there is any discharge or secretion in the posterior nares. Bad cases may require douching every two hours. Before I insisted on this as a routine I saw two cases of para-scarlet in which a membranous cast of the posterior nares formed during the first two days of illness and caused very considerable trouble. I find the best lotions for nasal douching are the eucalyptus co. soloid made up in half the strength advised on the label, or pot. permanganate 1/10,000. The usual pill and senna should be given in every case the first or second day, and I usually give at the start the first night a powder of aspirin grs. v., phenacetin grs. iis., and pulv. ipecac. co. grs. iis., and repeat if the temperature does not come down.

* This was originally written in 1923 before the general acceptance of the *Streptococcus hæmolyticus*, and before the Dick and Schultz-Charlton tests were available in this country; and as will be evident from the dates of my epidemics I have since had no opportunity of using these tests in corroboration or the reverse of my thesis.

I now give as a routine an initial dose of 10 to 20 c.cm. of polyvalent antistreptococcic serum (B. W. and Co.) to all cases of both scarlet and para-scarlet A, and repeat this in 10 c.cm. doses if the temperature has not markedly fallen in 24 hours. I am sure that this shortens the toxic stage, and either checks the supply or helps the elimination of toxin, thus lessening the chance of complications. It also seems to shorten the period of convalescence.

The importance of distinguishing these diseases from one another is twofold:—

(1) As the cases quoted by Filatow, Dukes, Weaver, and myself show, neither scarlet fever, the para forms, nor rubella protect against each other, and a wider recognition of their separate nature will help to prevent the admission of the para forms into hospital with cases of scarlet fever.

(2) Recognition will facilitate the early discharge of the para B and the mild cases of para A from hospital; there are few, if any, medical officers who would regard it as safe or expedient to liberate a case of scarlet fever, however mild, under four weeks; while the majority of cases of para A and all of para B can be discharged to ordinary life with perfect safety in two weeks. This is important on the grounds of finance, public opinion, and school management.

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THE CONSERVATIVE MASTOID OPERATION.

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IN this paper I propose to show to what an extent a change in physiology may prove an aid to surgery in restoring the hearing of the discharging ear. Few medical men realise that the largest ear hospital in this country, probably, indeed, in the world, is maintained by the Metropolitan Asylums Board and is known as the Downs Hospital for Children. Hundreds of children are sent thither every year for mastoid operations, mostly for the cure of chronic aural suppuration, often on both sides. The resident surgeons of this hospital have therefore unique opportunities for practice and experience. A recent annual report of the Board contains a contribution by Dr. Anthony Wrench (assistant medical officer at the Downs Hospital), entitled Some Guiding Principles in the Post-operative Treatment of Mastoid Disease. A note runs thus:—

"These remarks apply to the radical and Heath's conservative mastoid operations. The Schwartze operation is now never performed at the Downs Hospital, as this method of dealing with mastoid disease has not infrequently been found to be followed by dangerous recurrences. The dressings also are more painful; the scar is unsightly; and, worst fault of all, the site of the antral cavity and the drum-head are left practically inaccessible."

These four reasons are given by Dr. Wrench for the definite decision of the resident staff at the Downs Hospital to discontinue the performance of mastoid operations by Schwartze's method. I propose to deal with them seriatim and then to add some others.

Dangerous Recurrences.

The Schwartze operation, designed for the cure of acute mastoiditis (i.e., pus pent up in the mastoid antrum) in early cases of otitis media, is not infrequently followed by recurrences of the acute conditi›› which are dangerous because this operation does not provide for permanent outward drainage of the antrum. This cavity is the only part of the ear in which septic discharge is likely to be pent up so as to destroy life and is also, in chronic cases (in the absence of adenoids and tonsils) the source of that persistent discharge which, in its passage through the tympanum, perpetuates disease there and thus destroys the hearing. At the Ninth International Otological Congress (in America) I cited the statistics of six different observers, embracing 739 mastoid operations for the cure of discharging ears (360 of them my own at the Throat Hospital), in which, without a single exception, disease was found in the mastoid antrum both in acute and chronic cases. This dangerous mucous cavity, less than a pea in size, surrounded by bone, lined with a variable mucous membrane, drained inwards to th‘ tympanum by a tiny channel (the aditus), and situated barely one-sixteenth of an inch (often indeed less) from the brain and the lateral sinus, is only accessible for treatment, surgically or otherwise, by means of a mastoid operation. Operation has proved to be the best remedy in disease of the mastoid cul-de-sac, just as it has in appendicitis.

I have seen dangerous cases of recurrence after the Schwartze operation, most often in public hospitals, such as the Downs, and at fever hospitals, and always in patients who had undergone operations elsewhere. The conditions in these recurrent cases may be as bad as, or indeed worse than, those existing at the time of the original operation. I was gratified, therefore, to learn from Dr. Wrench's article that the Schwartze operation had been abandoned at the Downs Hospital.

Painful Dressings.

The problem of painful dressings in children is so serious that if it had not been solved it is doubtful if the Downs Hospital could have been maintained. Elsewhere I have known chloroform given as often as twice a week for six months for the dressings after Stacke's (radical) operation. Manifestly this would be impossible for the 150 children at the Downs Hospital. At this hospital the after-treatment designed by me (of which Dr. Wrench's article gives the guiding principles) enables one person to dress over 100 patients in a morning. These dressings are carried out more easily after the conservative operation than after any other, because the mastoid antrum—the only part packed—has purposely been rendered easily visible and accessible through the meatus.

An elderly doctor, on whom I recently operated to save hearing, and who feared the operation mainly because of what he described as "the horribly painful dressings" he had previously seen after Schwartze operations, wrote from the country three weeks later, when he had quite recovered: "The painlessness of the dressings has most deeply impressed me."

Unsightly Scars and Inaccessibility.

After the Schwartze operation the wound is left open and disfigurement results; I have, indeed, known plastic operations to be necessary.

The inaccessibility of the mastoid antrum is responsible for danger, and even loss of life, in recurrences after the Schwartze operation, because it does not secure that severance of the mastoid antrum from the middle ear, which is an essential feature of my operation. I ensure that the antrum—through the complete destruction of its lining mucosa—shall permanently cease to be a mucus-secreting cavity draining inwards through a very narrow channel into the middle ear; that it shall be severed from all connexion with the middle ear; that it shall open widely outwards, and become part and parcel of an enlarged and dry external auditory meatus, widely open to the air, so that discharge cannot possibly be pent up. This constitutes a complete physiological change in the function of this dangerous, mucus-secreting cavity, and necessitates a surgical re-arrangement of the hinder end of the middle ear. This rearrangement has a double purpose; first,

that of ensuring the immediate and future safety of the patient's life, and secondly, of arresting the septic antral discharge and resulting tympanic destruction, in order to save the hearing. The procedure entails the removal of nearly the whole front wall of the antrum, so that it is as widely open and as easily visible and accessible as the meatus itself. It was because the tiny antrum is embedded in bone in a dangerous locality and therefore cannot, like the cæcal appendix, be completely removed, that I devised this method of rendering it permanently safe. I have only seen two recurrences of acute otitis media after operations by my method, one 10, the other 14 years later—each being due to a "cold in the head"—a complication against which we can never permanently provide. In each case both the safety-valves gave way under pressure, so both are obviously required. One is the thin membrane which forms across the aditus after the operation (thus separating the antrum from the middle ear), the other is the scar which heals the perforation of the drum-head. Neither of these patients was away from work during the short period of healing. To one patient I was called too late, and I know of other recent recurrences of mastoid disease after the Schwartze method which also ended fatally in spite of repeated operations within four months of the original treatment.

The less serious recurrences after Schwartze operations, admitted into the Downs Hospital, are usually dealt with as follows: (1) A conservative mastoid operation is performed through an entirely fresh skin incision farther forward and close to the ear (as in a primary conservative operation); and (2) the disfiguring scar, and the suppurating sinus, if present, are excised and the wound sewn up. In this way future danger and disfigurement are both obviated.

Prolonged After-treatment.

Open wounds are left after the Schwartze operation and sometimes these never heal; consequently the disfigurement and the foul and visible discharge are a life-long nuisance. Considering the complete and rapid cure effected by timely conservative mastoid operations, even when both ears have been operated upon at one sitting, there seems no justification for allowing thousands of ears to be destroyed in London every year by prolonged suppuration. In the conservative operation there is no shock, pain, or loss of blood to cause anxiety and, but for the sickness from the anæsthetic, the patient would not be at all ill. Not only is the hearing restored, but if both ears are treated the patient seems subsequently to be proof against injury to the hearing by the concussions of big guns.

Facial paralysis and deafness are also liable to be induced during the Schwartze operation through injury of the nerve or dislocation of the incus, because of the difficulty in locating these structures. The tympanic ring and drum-head are not exposed for the purpose of locating them in the Schwartze operation, whereas in the conservative operation they are. This explains some of the hitherto inexplicable cases of deafness following the Schwartze operation.

Suppuration within the sheath of the temporal muscle is apt to occur both in Stacke's (radical) and in the Schwartze operation, because the sheath is opened and the exposed muscle may become involved in the septic process. In the conservative operation the sheath is not opened.

Schwartze's old and so-called "simple" mastoid operation, like the earliest abdominal operations, is altogether too primitive. It constituted an early phase in the genesis of aural operations. While abdominal operations have been improved out of all knowledge since their initiation, the Schwartze operation has remained what it always was—a mere emergency measure, hurriedly improvised to save life by providing temporary drainage for a dangerously situated acute abscess in bone. This operation does not secure the patient against an equally, or even more, serious recurrence; moreover, it was not devised for the preservation of the hearing. In my experience the Schwartze operation is a far more extensive proceeding than the limits of the disease usually justify.

Aural surgery is proverbially unsuccessful in saving the hearing, and it is important that the reason for this should be widely known, that nearly all mastoid operations are performed much too late—that is to say, after the hearing apparatus has been ruined by disease. This deplorable state of things usually arises from inability to diagnose the tympanic conditions; this is not surprising, since the necessary information is not given in any text-book. The surgeon who cannot diagnose these conditions cannot possibly know when he ought to operate to save the hearing. While he waits hearing is lost beyond recovery. It is in this disastrous condition of lost hearing from neglecting to operate when the hearing is endangered that most of the children are sent to the Downs Hospital for operation, and in consequence of this a large majority of the mastoid operations performed there are by Stacke's "radical" method. This operation may put an end to disease and danger, but it does not save the hearing; it was not devised or intended for that purpose. If these children are sent to hospital in time to save their hearing they all undergo operation by the conservative method. Last year no more than 105 cases were admitted for my operation, whereas 267 Stacke's radical operations were necessary. As this entails removal of the drum-head and ossicles, permanently defective hearing in a large majority of these children was the inevitable result.

I have persistently condemned the prolonged treatment of suppurating ears by syringing and drops, and the treatment by ionisation, now in vogue, is little if any, more effective. Thousands of the children who are being thus treated will never hear properly again; the disease has been allowed to exist too long. With few exceptions the longer the disease lasts the more damage is done to the hearing. Persistent suppuration in any situation is destructive, and it is especially so in the tiny channels of the ear.

Short of a conservative mastoid operation the earliest possible removal of adenoids offers far the best prospect of curing a suppurating ear. Attendance as an out-patient at a hospital or school clinic, for the treatment of a chronically discharging ear, is usually a waste of time and, through the delay in admission for operation, often results in the loss of hearing. Destruction of the ear through chronic suppuration is sometimes very rapid and, as pain may be absent, it may not attract attention.

After my introduction of the conservative operation at the Throat Hospital I performed 360 mastoid operations there with only one death; most of these were cases of acute mastoiditis arising in ears that had long been diseased, for which Stacke's radical operation had been previously designed and used. The average duration of the disease in these 360 patients was six years. The long delay was mainly due to lack of beds; but even six weeks is far too long to delay operation if perfect restoration of the hearing is to be made probable. These statistics indicate that a mastoid operation should not in itself be dangerous, though the conditions which call for it often are.

Summary.

The characteristics of the three mastoid operations can now be briefly summed up and compared.

(1) Schwartze's "simple" operation was devised as an emergency measure for use in early acute disease to save the patient's life. It is unsatisfactory, mainly because it was not designed to ensure the future safety of the patient. It has, moreover, many other very serious drawbacks, as pointed out by Dr. Wrench and described above.

(2) Stacke's radical operation was also not devised for saving the hearing, but for curing chronic disease, or acute mastoiditis arising in chronic cases—i.e., it also is life-saving, for the future as well as the immediate present. Nevertheless, it is unsatisfactory, entailing as it does the removal of the drum-head and

ossicles, and rendering the hearing permanently defective.

(3) My method, the conservative operation, besides being life-saving, immediate and remote, is the only one of the three which is designed to preserve the hearing. These twofold advantages are only rendered possible by the physiological change brought about in the function of the mastoid antrum—the distinctive and outstanding feature of the operation.

If the hearing of the persistently discharging ear is to be made and kept safe the only effective and permanent remedy available is a timely conservative mastoid operation—i.e., one which is performed in time to arrest the disease before it has ruined the ear.

ON PORPHYRIN IN THE MOUTH.

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I RECENTLY had the opportunity of observing a case of congenital hæmatoporphyrinuria, and this article describes an investigation to which the study of the patient gave rise. Various substances have been classed as porphyrins, partly because of their spectroscopic and other qualities and partly because of their chemical composition. The table shows some of the porphyrins as they are described in current literature with some of their properties. This list is still incomplete, and it is possible that in the future more porphyrins will be added.

Table showing the Qualities of Porphyrins Detected in the Urine.

—	Position of the two principal bands in HCl-acid solution.		Solubility in æther.	From HCl into chloroform.
Coproporphyrin	594	551	Soluble.	Does not enter.
Uroporphyrin..	598	554	Insoluble.	
Kämmerer's porphyrin	602	557	Soluble.	Enters.

The porphyrin hitherto found in the urine of the few cases of congenital porphyrinuria which have been thoroughly examined is uroporphyrin. The traces of porphyrin which can be found in the urine and fæces of normal persons are coproporphyrin.

In the fæces of healthy people who have eaten food containing blood and those of sufferers from gastric or intestinal hæmorrhage another sort of porphyrin is found; to this the name of Kämmerer's porphyrin may be given. This author prepared in vitro, by adding various microbes to blood, a sort of porphyrin, which had the same properties as the substance appearing in the fæces after partaking of meat or blood (Snapper, Pappendieck).

When trying to trace small quantities of porphyrin I made use of their property of displaying a red fluorescence in a dark room when irradiated with ultra-violet light with exclusion of the visible rays. The same method had already been used by other workers (Keller, Langecker, Derrien).[1] The fluorescence test must, however, be accepted with considerable reserve, for many reasons. The solvent and accompanying substances exert a great influence on the phenomenon, so that mixtures or impure solutions are often not fluorescent or do not give the typical colour. On the other hand, various substances (which are, however, generally related) can cause the same fluorescence. Chlorophyll in alcoholic solution, for instance, can produce a fluorescence very similar to that of porphyrin. This does not alter the fact that the phenomenon of fluorescence, on account of the extraordinary sensitivity and simplicity of the method, is of great value as a means of orientation, enabling us rapidly to trace small quantities of a substance. Solutions which appear to be completely colourless by ordinary light give a strong fluorescence. This physical property must, however, always be controlled by other physical and chemical investigations.

Fluorescence of the Teeth and Tongue.

Garrod's[2] work on porphyrinuria dates from 1892, and he was the pioneer of the clinical investigation of this pigment; he[3] and, later on, other English writers[4] noticed that in some cases of congenital porphyrinuria in children the teeth show a beautiful red fluorescence when irradiated with filtered ultra-violet light. My patient's teeth also showed a red fluorescence, not previously described in adults suffering from this disease. When, however, I examined several middle-aged healthy individuals, and patients of all kinds, the same fluorescence was seen in most of them. Closer examination showed that it was near to the implantation in the gums, and varied in amount in different persons. It was easy to demonstrate that this fluorescence was not caused by the dentine (as in Garrod's patient), but by the tartar deposited on the teeth. In the same way, in my case of congenital porphyrinuria it proved not to be the teeth themselves which showed fluorescence, but the tartar. The phenomenon in this case must, therefore, be quite different from that observed by Garrod. Moreover, the back of the tongue also showed a more or less visible red fluorescence in almost every case. Bommer[5] examined by filtered ultra-violet light various organs after death and also the skin and mucous membranes during life. He also found that the tongue and teeth displayed a red fluorescence and, in the latter, that it was the tartar which must be regarded as the cause of the phenomenon.

Porphyrin the Cause of the Fluorescence.

Bommer, however, made no chemical investigations into the nature of the substance causing the fluorescence. My line of research lay in determining whether or not the cause of the fluorescence of the tartar was porphyrin. Recently I learned that in 1924 Derrien,[6] studying porphyrin by means of filtered ultra-violet light, observed red fluorescent spots in fragments of teeth. These he ascribed to the action of microbes, making Kämmerer's porphyrin out of the blood of the foods. Derrien did not, however, actually examine the substance chemically or spectroscopically.

In order to get a sufficient quantity of substance I used a number of teeth extracted in the Dental Institute of the University. The tartar was scratched off and ground fine in a mortar. This powder showed a red fluorescence, as might be expected. By extracting it with a mixture of glacial acetic acid and ethyl-acetate (1 : 4) a solution was obtained which, after filtering, again showed a beautiful red fluorescence. This solution was shaken up with a small quantity of 5 per cent. hydrochloric acid. As is characteristic of porphyrin, the substance passed into the hydrochloric acid, which it coloured red if the concentration was sufficiently strong. The hydrochloric solution of the substance, separated from the upper acetic acid-ether layer in a separation funnel, gave a beautiful red fluorescence, and the typical spectrum of acid coproporphyrin. When the powder or the hydrochloric solution were extracted with chloroform the substance did not enter the chloroform. It is permissible to conclude that the tartar of the teeth contains a substance which, as far as can at present be traced, is identical with, or at least very closely related to, coproporphyrin. It is not difficult to understand how the porphyrin is deposited in the tartar. If an elderly person whose enamel is no longer perfectly smooth does not brush his teeth for one or more days (even this omission is not absolutely necessary) the teeth, some hours after breakfast, will yield a greater or lesser quantity of white deposit, "the materia alba" of Leeuwenhoek.[7] This deposit is soft, pappy, and easily rubbed off. The coating from the surface of the tongue and the dental deposit both give a beautiful red fluorescence in filtered ultra-violet light. If this material is extracted with a mixture of glacial acetic acid and ethyl acetate, the mixture washed out with water, from which it is separated in a separating funnel, and the acetic-ether-solution extracted with 5 per cent. hydrochloric acid, the resulting solution gives the spectrum of acid coproporphyrin. The porphyrin in

this deposit is retained by the calcium salts of the tartar. Tartar, indeed, consists largely of calcium salts, by which porphyrin is readily adsorbed. The material alba gives the fluorescent phenomenon, and —after extraction—the spectrum of coproporphyrin, after a breakfast consisting only of milk and bread, without any meat, blood-containing food, or green vegetables.

The Origin of Porphyrin in the Mouth.

The intensity of the red fluorescence of the materia alba was not greater on the parts touching the gums than it was further up towards the distal portion of the teeth. From this we may conclude that the porphyrin in the mouth does not necessarily arise from hæmoglobin (neither from the hæmoglobin contained in the food, nor from small hæmorrhages out of the gums). Nor is it formed out of chlorophyll from vegetable foods. (I once found the same red fluorescence in the tartar of a horse's teeth.) Moreover, the spectrum of the tartar and the tongue- and teeth-porphyrin does not correspond with that of the porphyrin formed by bacteria from hæmoglobin or that found in the fæces after swallowing blood. Microscopic inspection of a small quantity of the materia alba, smeared directly upon a slide or rubbed with glycerine and water, showed no traces of food particles. In patients who had only eaten bread, milk, and cereals I found no more starch a few hours later. Addition of lugol solution did not produce a blue colouring. Evidently all the residues of the food had been dissolved and the starch had been saccharified. The whole mass of materia alba appeared to consist of a dense net of threads (leptothrix), between which might be seen granules (spores) as well as bacteria. These slide specimens gave off an intense red fluorescence in filtered ultra-violet light. When, however, they were examined microscopically with ultra-violet filtered light the leptothrix threads did not produce fluorescence. After cultivation of the microbes of the mouth (leptothrix has not yet been cultivated on artificial media) we did not discover which of them gave rise to the porphyrin.

Another possible source of the porphyrin in the mouth is the saliva. We have already remarked that the urine of all normal persons contains coproporphyrin, though in very small quantities; we also found traces in the bile. It is probable, therefore, that under physiological conditions it may also be secreted by other glands, for instance, by the salivary glands—and we succeeded in extracting coproporphyrin from the saliva of normal persons in relatively greater quantities than from the urine. The absolute quantity in the saliva is, nevertheless, so small that it seems unreasonable to suggest that the relatively large quantities of porphyrin in the materia alba and on the tongue, formed in a short time, may be ascribed to the porphyrin content of the saliva.

Whether or not the microbes of the teeth play an important rôle in forming the porphyrin of the materia alba, the components of the food are its most likely source. As milk and bread had produced it we examined these foodstuffs for porphyrin and extracted it from both. Fischer had already shown that milk contained small quantities of porphyrin, and we extracted an even larger quantity out of bread. It further appeared that much larger quantities of porphyrin could be obtained from a mixture of milk and bread kept in the incubator for 24–48 hours at a temperature of 37° C., than from the same quantities of milk and bread kept separately. In ordinary baker's yeast kept in the incubator, as Fischer has discovered, large quantities of porphyrin are formed. After incubating yeast for three days we could even see the fluorescence by ultra-violet rays without previous extraction. The formation of porphyrin in bread might be attributed, therefore, to the living yeast cells which are always found in it, but this explanation does not seem plausible, because the cells in bread are so few. It seems more probable that microbes, developing in a mixture of milk and bread in the incubator, are responsible for the formation of porphyrin. It is noticeable that, whilst the mixture did not show a direct fluorescence after several days of incubation, and yeast only showed a faint fluorescence in ultra-violet light after three days, the materia alba of the teeth, which is formed in a few hours, showed an intensive fluorescence without previous extraction.

We do not yet know what happens to the porphyrin formed in the mouth. It is not unreasonable to suppose that a smaller or larger proportion of it is swallowed, but it is not known whether it is decomposed, absorbed, or excreted with the fæces, nor whether it may be a source of error in detecting traces of blood in the fæces according to Snapper's method, and if so how such error may be avoided.

Finally, it may be mentioned that the coating on the tongue which gives the fluorescent phenomenon can only be partially removed. After the surface of the tongue has been scraped rather vigorously it remains fluorescent in ultra-violet light.

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TWO CASES OF CONJOINED TWINS.

I.—A THORACOPAGUS.

By C. VINCENT PATRICK, M.B. Camb., F.R.C.S. Eng.,
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THE thoracopagous or xiphopagous twin monster is only one of the large variety of twin monsters described and classified by Schwalbe.[1] This type consists of two individuals, usually of the same size and always of the same sex, each trunk being complete with normal limbs and head, but joined down the front of the thorax to its twin, face to face. A living example, aged 18 months, has been described by Baudouin[2]; another case very similar to the present is described by Bennett and Patten[3]; and other cases have been described by Berry,[4] Crouzat,[5] and Condon.[6] A similar lamb monster has been described by Berry and Sinclair.[7] Omphalopagous twins, where the union is on the ventral surface but does not involve the thorax, are to be distinguished.

FIG. 1.

Photograph of the thoracopagous twins during life.

The monster here described was born at nearly full term, and survived four and a half days; its two components behaved as two separate individuals, and died within a few minutes of each other.

Antenatal Examination and Birth.

The mother, aged 27, had previously borne one child. The delivery was normal, and the child is now four years old and quite normal and healthy. The last period before the abnormal pregnancy ended on Dec. 20th, 1926, making the expected date of confinement Sept. 27th, 1927. The mother presented herself at the antenatal clinic of the General Lying-in Hospital, York-road, on August 9th, 1927, and I am indebted to Dr. G. W. S. de Jersey, late resident medical officer at York-road, for the following account of the antenatal findings and of the labour, which was conducted in the patient's home by a district midwife.

"August 9th: Liquor amnii above the average. Number of limbs felt, — ? twins. One back felt to right, head well in pelvis. Only one fœtal heart heard, out in right flank. To be seen again on Sept. 6th.

"Sept. 2nd: Called at 4.30 P.M. History of membranes rupturing at 1 A.M., and slight pains since. Abdomen small, liquor evidently having drained away. Head in pelvis. On both right side and left side what appeared to be a back. No second head could be found, but an unusual number of knobbly parts felt. No fœtal heart heard. Per vaginam: head well in cavity, membranes ruptured, os two-thirds dilated. The pains were irregular and short. A soap-and-water enema was given with good result.

"6.15 P.M.: Per vaginam, os only a rim all round; head seemed small, and delivery expected in a few good pains. After showing at the vulva, the head progressed very slowly, so it was delivered between pains by post-anal pressure. After delivery of the head, no progress was made with the next pain, so slight traction was exerted on the anterior shoulder, which came down under the pubic arch. The head was carried forwards, and the posterior shoulder brought under the perineum. No progress was made, and some indefinite obstruction seemed to be occurring above the pubes. Locked twins were suspected, and the following manœuvre was made: the shoulders were drawn back again, and the legs fell out under the pubic arch over the anterior shoulder. Firm traction backwards was made on the shoulders while the patient bore down with a good pain, and an assistant used fundal pressure; the buttocks of the first baby were then born under the pubes, followed immediately by the legs and buttocks of the second baby, whose head must have gone back into the hollow of the sacrum, the child having performed version in the cavity of the pelvis. The bodies and legs were now lying forwards, and the head of the first baby backwards and externally near the anus, separated from the head of the second child, which was inside the pelvis, by the perineum. The head of the second child was now born easily, by carrying the whole mass forwards. One baby cried feebly and both breathed well. The cord was ligatured; the placenta was expelled in ten minutes. The placenta, membranes, and cord were normal. There was no damage to the perineum."

FIG. 2.

Radiogram of the thoracopagus.

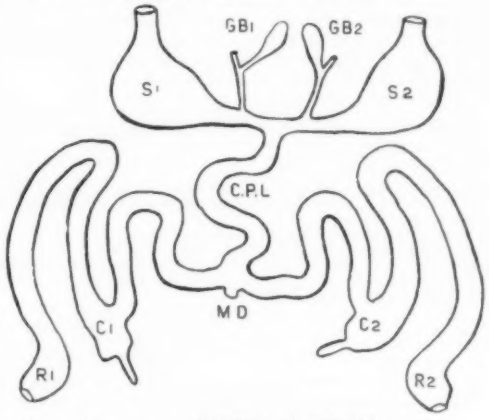
Subsequent History.

The monster was admitted to St. Thomas's Hospital on Sept. 3rd, 15 hours after delivery. The external appearance was of two complete female infants, joined together on their anterior surfaces from the angle of Ludwig to the umbilicus (Fig. 1). The area of fusion was 4½ inches long, and approximately 3 inches wide, occupying almost the full width of the anterior surfaces, and showing a sulcus on either side at the line of junction of the two bodies. A single ligatured umbilical cord entered at a common umbilicus at the lower end of the junction. One child was slightly cyanosed, the other a more normal colour. Both were approximately the same size, the total weight was ten pounds. All eight limbs were normal, and each twin cried and moved its limbs independently of the other.

Radiograms (Fig. 2) taken by Dr. Geoffrey Fildes, showed that there was no bony union between the thoracic cavities. Except for the sternal elements, which were displaced upwards and lay in the upper part of the junction, the skeletons were seen to be normal. The hearts and livers were in apposition, and probably fused; each twin was seen to possess its own stomach, but loops of intestine crossed from one to the other, the peritoneal cavity being evidently common.

The pulse- and respiration-rates of one twin differed from the rates of the other: simultaneous counts of the pulses being 120 : 128, 132 : 136, and 132 : 124 on different occasions while in hospital. The rectal temperatures varied between 95° and 97·6°, the cyanosed twin usually having a temperature about one degree below that of the other. On Sept. 4th both were taking water, and passing urine and meconium. Both cried feebly at times, but seemed

FIG. 3.—*Diagram of the Intestinal Canal.*



S_1 .. S_2	.. ..	Stomach of each twin.
$G.B._1$ .. $G.B._2$	.. ..	Gall-bladder of each twin.
C_1 .. C_2	.. ..	Cæcum " " "
R_1 .. R_2	.. ..	Rectum " " "
C.P.L...	.. ..	Common proximal loop of small gut (proximal limb of umbilical loop).
M.D.	.. .. ..	Meckel's diverticulum (blind).

to have a very weak hold on life. On Sept. 5th the cyanosed twin was a better colour. They both took expressed breast milk in three-hourly feeds; they seemed stronger, and their survival appeared possible. The next day however they both became cyanosed and markedly weaker: the one originally cyanosed died at 6.30 A.M. on Sept. 7th, and the other died two minutes later.

Post-mortem Appearances.

A partial post-mortem dissection was made by Prof. F. G. Parsons after the specimen had been hardened in formalin. A complete dissection of the hearts and great vessels was not carried out, as it was intended to keep the specimen as intact as possible for museum purposes.

The thorax contained two pleural cavities and one pericardial cavity. The right lung of one twin and the left lung of the other lay in the same pleural cavity; the lungs were not fused. The two hearts were fused, and lay in a common pericardial cavity. The external appearance of the hearts suggested that they were two normal hearts joined together. A window was cut in the fused cardiac mass, which showed that the wall of the left ventricle of one twin was fused with the wall of the right ventricle of the other, but that there was no communication between them. Beneath the diaphragm, which was continuous across the plane of fusion, there was a single large common peritoneal cavity. The livers were fused, but there were sulci indicating the line of fusion. Each liver had its own gall-bladder and bile-ducts. Each twin had a stomach (Fig. 3), which passed into a short narrow duodenum, into which the common bile-duct of its own liver entered. The two duodenums then joined together in the midline of the plane of fusion, and a common proximal loop of small bowel, with a mesentery, proceeded from the point of junction and lay in loops in the upper part of the common peritoneal cavity. At a point rather above the mid-point of the small bowel, marked by a small blind diverticulum, the intestine divided again; each lower loop of small intestine passed to its own cæcum, colon, and rectum. All the parts of the small and large bowel, with the exception of the duodenum, had mesenteries, and were freely mobile, lying partially in each half of the common peritoneal cavity. There was no fusion of the bladders, and no other abnormalities were observed.

Prof. Parsons points out that the condition of the intestines may be explained developmentally by the fusion of the proximal limbs of the two umbilical loops, the other segments of the intestine remaining separate. This common loop of intestine alone would have rendered impossible the operative separation of the twins, had this been contemplated.

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II.—A CRANIOPAGUS.

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THE craniopagous monster was admitted to Guy's Hospital on Dec. 14th, 1927, four days after delivery. The external appearance, reproduced in the photographs, was that of two complete females joined together by the whole extent of the vertex of the skull. The infant referred to throughout as No. 1 was somewhat larger than that referred to as No. 2, had a better colour, and was generally stronger and more active. No. 2 had a left-sided facial paralysis. Both took food well, but No. 2 steadily deteriorated during the six days passed in hospital, growing daily more feeble, and suffering for the last two days from diarrhœa. The condition of No. 1 remained good throughout.

FIG. 1.

Photograph of the craniopagous twins during life

We were informed that No. 1 had been born first, a breech presentation, the breech of No. 2 being the last part to be delivered.

The pulse-rate in No. 1 was on the average five beats per minute faster than in No. 2. No difference in the temperature and rate of respiration could be noted. Blood counts showed little difference from each other and no abnormality. The infants acted quite independently. At times one would cry, flushing and moving restlessly with bulging fontanelle, while the other slept quietly with a fontanelle quite unchanged. Urine and fæces were passed independently, and vomiting took place at different times in each. The stimulus applied to one produced movement and reaction without disturbing the other. Indigo-carmine, 3 c.cm., was injected into the buttock of No. 1 and the dye was found freely in the urine in one and a half hours. In much less amount it appeared in the urine of No. 2 after five and a half hours. The long axis of the infants was not on the same plane, with the result that it was by no means easy to arrange that each lay comfortably. If one lay flat on the surface of the mattress, it was necessary to incline the support slightly for the other in order to attain a position which was not resented.

Since the infants continued to live and No. 1 appeared even to thrive I very reluctantly advised an

FIG. 2.

Lateral view of the fused vertexes.

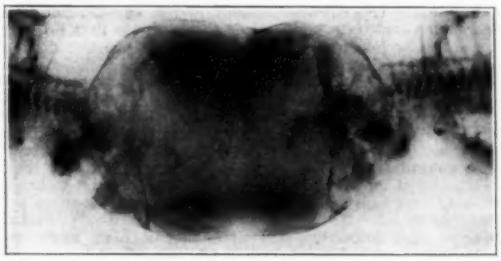
attempt at separation. It was evident from the behaviour of the infants and from the test with indigo-carmine that the circulation was continuous only to a slight extent. There was, no doubt, some superficial cutaneous anastomosis, and it was to be expected that the superior longitudinal sinuses were in communication.

Some years ago I had the experience of watching an infant who, on the tenth day of life, suffered from embolic occlusion of the femoral artery of the right leg. A complete line of demarcation formed within a few days, and the infant shed the gangrenous limb with extreme rapidity. On the seventh day after the accident Mr. L. Bromley completed the removal of the limb which had almost completely separated itself. The constitutional disturbance was so slight that the infant actually gained several ounces in weight

allowing for the weight of the amputated limb, during the week in which the separation took place.

With this experience in mind, I thought that it was just possible that the removal of the smaller infant, whose life was already in great danger, might not necessarily entail the death of the larger, provided always that the dura mater in each child was complete, and the subdural spaces separate. During removal of No. 2 it was clear that No. 1 would require no anæsthetic and would lose only minimal amounts of blood if the line of separation was made well to the farther side of the actual line of junction. I thought it possible that if No. 1 survived that any still adhering portions of No. 2 might be shed by the formation of a line of demarcation, and that later some plastic operation might be performed to minimise the resulting deformity. On Dec. 22nd Mr. Bromley was good enough to consent to make the attempt. As a preliminary, blood was withdrawn from No. 2 by Mr. F. N. Reynolds, who kindly attended for the purpose, and stood ready if need had been to transfuse the

FIG. 3.



Radiogram of craniopagus.

infant No. 1. Mr. Bromley then rapidly attempted the removal of infant No. 2, which was anæsthetised by Dr. Eric Scott. During the whole of the early stages of the operation the infant No. 1 rested peacefully, had a good colour, and showed no sign of pain or disturbance, from the active removal of No. 2 which was proceeding. At the point, however, when the subdural space of infant No. 2 was opened the pulse of No. 1 suddenly failed and death was instantaneous. The reason at the same time became apparent. There was a common subarachnoid space, with great deficiency in the development of the dura, and the cerebro-spinal fluid was in free communication, so that the fall in pressure was instantly communicated to that of No. 1.

On post-mortem inspection it was clear that the folds of dura mater were completely developed on the left side of No. 1 and the right side of No. 2, and that the falx cerebri in each case was well-formed. On the right side of No. 1 and the left side of No. 2 the dura mater was defective, so that the corresponding hemispheres of the two infants were only separated by pia mater. The superior longitudinal sinuses communicated about one inch in front of each torcular herophili by a wide sinus. The weight of infant No. 1 after death was 4 lb. 9½ oz., of infant No. 2 2 lb. 12½ oz. The length of infant No. 1 was 18¾ in., of No. 2 17 in. The weight of the combined infants at birth had been 8 lb. 4 oz.

In studying these two cases of conjoined twin monsters the most striking feature is the community of the pleural, pericardial, and peritoneal cavities in the thoracopagus and of the intradural space in the craniopagus, a fusion which renders attempts at separation useless.

RECORDER'S SALARY FOR A HOSPITAL.—Mr. R. H. Vernon Wragge, Recorder of Pontefract, announces that he intends to bequeath the whole of the salary he has received, or will in the future receive, as Recorder to the Pontefract Infirmary. Mr. Wragge has held the position for 23 years and the total amounts at present to about £1000.

LEUCOCYTIC CHANGES RESULTING FROM THE TREATMENT OF PERNICIOUS ANÆMIA WITH LIVER.

BY L. E. H. WHITBY, M.D. CAMB., M.R.C.P. LOND.,
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IN observing and recording dramatic alterations in the blood of a case of pernicious anæmia under liver treatment it is not surprising that attention should concentrate on the red cells and hæmoglobin, for these two factors are the essential features of the disease. Nevertheless, liver treatment appears to have a definite effect also on the leucopenia of pernicious anæmia and to produce transient but obvious changes in the differential count.

Four cases only are recorded here, but what might have been an individual reaction in the first and most striking case seems to be quite usual in view of the similar though less marked results in three further consecutive cases. The common leucocytic blood picture in pernicious anæmia is a leucopenia with a relative lymphocytosis, a picture common to many chronic intoxications. Adequate liver diet appears to stimulate the production of leucocytes so that the leucopenia is abolished. In two of the cases here described the relative lymphocytosis disappeared and the differential count became normal except for a transient but definite eosinophilia. Eosinophilia was found in all four cases; it was so marked in the first case, rising to 26 per cent. after 11 weeks' treatment, that the same feature was carefully searched for in the other three, and though never reaching so high a figure was always present to the extent of a few points above the somewhat generous maximum normal figure of 5 per cent. The eosinophilia seems

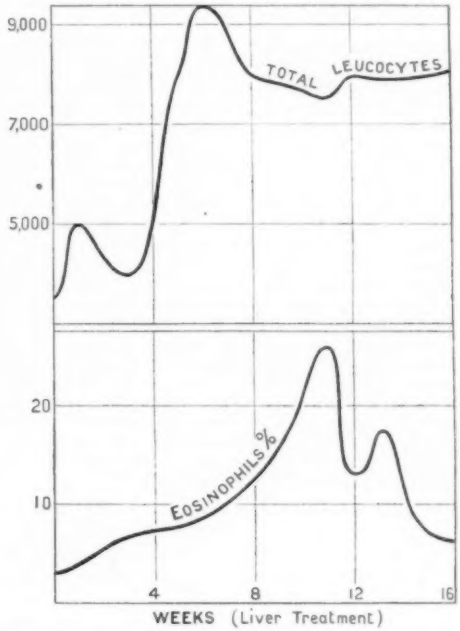

Chart showing alterations in leucocyte count in Case 1.

to be a part of the patient's reaction to the treatment, and the transient nature of the phenomenon points to a parallel between the reticulocyte reaction and the increase in eosinophils. The appearance of reticulocytes in the blood is the earliest favourable indication as to the prospect of a good result; the eosinophilia appears after the reticulocytes have gone and when

the patient is well on the way to having a normal blood count. It is conceivable, therefore, that eosinophilia will be found to be another favourable prognostic sign, and in support of this suggestion it may be stated that all the present four cases have done well with liver treatment.

The following extracts from the blood count records of the four cases show the essential features commented on above, expressed in relation to the time interval after beginning liver treatment. The red cell count in all the cases was greater than 4 million by the time the eosinophilia exceeded 5 per cent.

CASE 1 (see chart).—Treated with 4 oz. raw liver per diem given as a cocktail in orange juice. Eosinophilia 7 per cent. after five weeks' treatment, rose to 26 per cent. in 11 weeks, and subsided slowly to 5 per cent. in 15 weeks. Leucocytes rose to normal figure. Relative lymphocytosis not greatly affected.

Blood Count after Commencing Liver Treatment.

	CASE 2.			CASE 3.		CASE 4.	
Time in weeks:—	0	5	8	0	10	0	7
Total leucocytes..	4,800	11,200	13,200	6,000	6,000	3,200	5,100
Polymorpho-nuclears (%).	64	69	64	51	68	47·5	44
Lymphocytes (%)	32	24·5	26	41·5	23	49	40
Eosinophils (%)..	1·5	0·5	8	0·5	6	1	7

CASE 2.—Treated with 6 oz. cooked liver per diem. Mild leucocytosis with disappearance of relative lymphocytosis within five weeks. Eosinophilia 8 per cent. in eight weeks.

CASE 3.—Treated with 4 oz. raw liver per diem given as sandwiches. No effect on total leucocytes within ten weeks but relative lymphocytosis disappeared. Eosinophilia 6 per cent. in ten weeks.

CASE 4.—Treated with 3 oz. cooked liver and 3 oz. raw liver per diem. Total leucocytes increased. No effect on relative lymphocytosis. Eosinophilia 7 per cent. in seven weeks.

It is as difficult to find a reason for the occurrence of eosinophilia as it is to make a definite statement why liver should have such a profound effect on pernicious anæmia. If anything, the phenomenon is another point in favour of attributing the beneficial effect of liver to its action on the bone-marrow. The occurrence of eosinophilia in the later stages of acute infections such as pneumonia has long been known to be a favourable prognostic sign, and it would seem that the release of eosinophils into the circulation coincides with the subsidence in the stimulation of a highly taxed bone-marrow. In pernicious anæmia the bone-marrow is markedly active, but with liver treatment it can be assumed that the marrow tends to function in a distinctly more normal fashion within a few weeks. It is at this stage that the eosinophilia probably occurs. The eosinophilic reaction with liver treatment is probably well known to those who have had opportunities of studying numbers of cases, but those unaware of the phenomenon are not unlikely to suspect that parasites derived from the raw liver have been implanted in the patient.

My thanks are due to Dr. R. A. Young, Dr. C. E. Lakin, and Dr. H. E. A. Boldero for their kindness in permitting me to publish these facts about cases under their care.

HOSPITALS AND MOTOR ACCIDENTS.—The annual report of Manchester Royal Infirmary states that the average daily number of casualty cases in 1920 was 50. It is now 80, chiefly road accidents. This means, the report points out, that a casualty case is brought in every 18 minutes throughout the day and night.—The chairman of the Hounslow Hospital of 47 beds states that the heavy traffic on the Great West Road has compelled the setting up of a casualty service quite outside its normal function as a local institution. Last year 80 motor accident cases occupied beds for 1680 days, and only £74 10s. was received on account of them.

Clinical and Laboratory Notes.

A CASE OF TETANUS.

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THE following case of tetanus seems to be worthy of record, not only because of the comparative rarity of the disease in civilian practice, but also on account of the unusual route of infection, the isolation of the bacillus, usually so difficult to cultivate, and the course and result of treatment by antitetanic serum only.

The patient, a boy of 10, was admitted to the Fulham Hospital on Sept. 10th, 1927, with the following history. Twelve days previously, while playing with other children in a public park, one of them poured some lemonade into his left ear—he strenuously denies that anything except this lemonade was put in—and the same evening he complained of pain in the ear; the next day this became more severe and he "felt a lump in the ear"; this was soon followed by a discharge of pus from the left meatus, which continued. Six days after the commencement of the ear trouble—i.e., on Sept. 6th—a slight stiffness of the jaw was first noticed; this gradually became worse and extended to the cervical and dorsal muscles.

Condition on Admission.—He lay stiff and rigid on the bed, his teeth clenched, palpebral apertures narrowed, the angles of the mouth drawn down, giving the typical "risus sardonicus." His head was markedly retracted and the back arched; his upper limbs held stiff and slightly abducted at the shoulders, the elbows semiflexed; the lower limbs were abducted at the hips and slightly flexed at the knees. One could turn him bodily from side to side just as one would a plank of wood. He was clear and alert mentally, had no headache, and complained of nothing but his "stiffness." This rigidity was most marked in the masseters—one could barely insert a thin spatula between his clenched teeth—and in the muscles of the neck and back, where the rigidity could not be overcome at all. In the limbs the stiffness was most marked in the proximal joints and was not absolute. There was a frank discharge of rather foul-smelling pus from the left meatus which, on examination, showed a normal tympanic membrane but granulations and debris on the posterior meatal wall. All the tendon reflexes were brisk and the plantar reflex was flexor. The pupils were equal, and reacted well to light and accommodation. The cardiac and respiratory systems were normal. There were definite taches cérébrales. Temp. 98° F., pulse-rate 100, and respirations 24. A careful search revealed no abrasion or wound on the body.

The case was obviously one of severe tetanus, and it was decided to institute intensive treatment with antitetanic serum by the intrathecal and subcutaneous routes. This was commenced on Sept. 12th. Under general anæsthesia 25 c.cm. of cerebro-spinal fluid, which was quite normal both macroscopically and on detailed examination, were withdrawn by lumbar puncture and 20,000 units antitetanic serum were injected intrathecally; at the same time 10,000 units were given subcutaneously. The temperature, which had hitherto been normal, rose to 102·2° about 12 hours after the injection, but dropped to normal again within four hours. A similar but less marked pyrexia of transient duration occurred after each further intrathecal injection; otherwise the temperature was normal throughout the illness. The rigidity remained as before, but the patient was comparatively comfortable, swallowed fluids easily, and slept well. On Sept. 13th it was noticed that just before waking from a sleep there were some clonic twitchings of the limbs, which were also more rigid then; this lasted for a few minutes only. A second lumbar puncture was performed that day, and the pathologist's report on this cerebro-spinal fluid was as follows: "Turbid fluid with flocculent deposit. Excess of polymorph cells, 250 per c.cm. Albumin: 0·36 per cent. Aufrecht. Globulin present. Dextrose completely absent. pH, 9·5. A film preparation revealed the presence of Gram-negative intra- and extracellular diplococci; the fluid was sterile on repeated cultivation." This demonstrates the "meningitic" reaction following intrathecal serum injection; one cannot account for the presence of the cocci in the film; they were seen in the third specimen examined, but then disappeared completely; repeated specimens were constantly sterile on energetic cultivation. The patient was given a further 20,000 units of serum intrathecally and 8000 units subcutaneously, and this was again repeated on the following day. By Sept. 15th he had received a total of 94,000 units of serum, and a slight but definite improvement was noted, especially

in the rigidity of the limbs and back; on this day he was given 8000 units subcutaneously only. He developed a well-marked facial herpes at this time. The following day there were further clonic spasms of the limbs, if anything slightly more severe than previously, and he was given a fourth intrathecal injection of 20,000 units and 8000 subcutaneously. There was a marked improvement from then on, and the patient only received a further 8000 units subcutaneously, making a total of 130,000 units in all.

The bacteriologist's report on a specimen of the pus from the meatal discharge revealed the presence of tetanus bacilli after several days' incubation; they were associated with other sporing anaerobes. The meatitis rapidly cleared up under local treatment. The report on a final examination of the cerebro-spinal fluid on Oct. 5th was as follows: "No absolute increase in cells, but relatively lymphocytes appear in excess. Albumin 0·17 per cent. Globulin present. Dextrose, a trace. Chlorides, 0·7 per cent. Sterile on film and culture. The excess in protein probably a residual effect of earlier reaction."

Apart from a slight stiffness in the legs when first up, the patient made an uneventful recovery and was discharged completely cured.

I have to thank Dr. C. Thackray Parsons, the medical superintendent, for his invaluable aid and for permission to publish this case.

A CASE OF BORAX POISONING.

By JOHN BIRCH, M.R.C.S. ENG.,
LUTON.

THE following is an account of the fatal case of borax poisoning in a newborn child, to which reference was made in THE LANCET of Feb. 4th, p. 255:—

Clinical History.

I attended the mother for her confinement on Jan. 1st. The child was born an hour before my arrival and appeared normal except than an icterus developed—commonly ascribed to late ligation of the cord—which faded as the days passed. My visits ceased on Jan. 12th, but I was summoned on Sunday evening, Jan. 15th, by a message from the nurse stating that the child was dying.

On arrival I found the child had wasted extremely in the three days which had passed since my previous visit, although regularly fed. He was unconscious and the eyelids were closed. The thighs were flexed close to the abdomen; the legs flexed on the thighs. The arms were pressed to the trunk and the forearms fully flexed on the arms so that each closed hand was pressed to the side of the head just below and touching the ears. The heart beats were normal and the rectal temperature subnormal. The respiration was occasionally jerky—a fact noted by the mother also. The finger-nails and terminal phalanges of the left hand were coloured a bright red or pink, as if painted. The fore-finger was red and swollen as far as the wrist. The right hand was normal but the mother stated that the previous day that too was red but the redness had disappeared during the night. The whole of the scrotum, a ring round the anus, and both lips had a similar red appearance, a spot was visible at the external angle of right eye. I found that at least 2 oz. of borax and honey had been given "to prevent thrush"—there was not any thrush.

The colon was immediately washed out with warm water; the washings contained a substance having the appearance of cooked spinach, and the last of them brought away about 3 or 4 inches of what appeared like a mucous cast of the bowel stained green. On Tuesday and Wednesday the child appeared to be reviving and took milk but died suddenly on Wednesday night.

Post-mortem Findings.—The brain appeared normal; pale; ventricles empty; heart empty; bladder empty; intestines almost empty; pylorus normal; duodenum extremely thin walls; liver normal; kidneys very dark, swollen; punctate hæmorrhages under capsule which stripped easily. Lungs normal and expanded. The arterial blood had a pink appearance similar to that seen in carbon monoxide poisoning; post-mortem staining, pink. The stomach contained about 1 oz. of a yellow opaque material having the appearance and consistence of moderately thin honey.

The public seems in general to be unaware that borax is poisonous. For some time I have been in the habit of advising my patients against its use, and in my opinion the two preparations, glycerinum boracis and mel boracis, should find no place in the British Pharmacopœia in their present form.

A NOTE ON NIGHT TERRORS.

By J. W. SHACKLE, M.A. CAMB., M.R.C.S. ENG.,
MEDICAL ASSISTANT, GUY'S HOSPITAL.

NIGHT terrors are often confused with dreams and nightmares, for their outward manifestations are similar. The confusion may arise because writers on this subject have to rely on evidence furnished by a child—as yet unable to express itself and anxious to forget (actively if not passively) an agonising experience—or by a pair of harassed parents. It may therefore be worth while to give a subjective account of night terrors and nightmares, vividly remembered from childhood, which suggests that there is a very sharp dividing line between the two conditions. Briefly stated, the chief distinctions between them were that a nightmare might occur on any night, but especially after excitement or digestive disturbance, and might be repeated several times in the same night, giving no warning of its approach; definite visual images were seen. The night terrors, on the other hand, presented no visual images, occurred only once in the same night, and always gave warning of their approach. Their features were more or less constant, and those from which I suffered had the following character.

On going to bed after a perfectly normal day I usually slept soundly, but occasionally, without any apparent exciting cause, I would be conscious of a feeling of malaise. A small night-light was left burning, and, by the dim light of this, objects normally familiar took on a peculiar aspect. This is best described by saying that they looked larger than usual and possessed an uncanny hardness and what the photographer would call "contrastiness" of appearance; Meryon's famous etching of the Morgue has exactly the grimness and intensity of black and white contrast that was characteristic of the aura of the night terror. In keeping with this the pattern of the wallpaper stood up with peculiar unnatural hardness. There frequently appeared, just before the onset of the terror itself, a phenomenon which I have since come to recognise as a type of fortification figure; it was often replaced by an image consisting of black and white cross-hatching. At the end of about half an hour's continuous aura the night terror followed without perceptible interval. All consciousness of surrounding objects was lost and an image appeared which was peculiar to the night terror. Vague ill-defined masses were seen, some enormously large and others excessively small, conveying a general impression of prodigious contrast. The sensation experienced can be but inadequately described as fear of the most paralysing and dreadful kind, no fear experienced in night-mares or real life bearing any relation to it whatsoever. How long this lasted there is no means of gauging; it seemed an eternity. At the end I awoke exhausted. Objects in the room now had their normal appearance, but my nerve was always greatly shaken by the occurrence, and I had always to be reassured. My mother soon came to understand what had happened and always turned over the pillow, and this action, together with the cool fresh surface, always soothed me to sleep at once. The attack was never repeated in the same night, and attacks mercifully occurred at rare intervals. The aura preceding each attack was so well marked that I never failed to recognise it, and, realising what was about to happen, used to strive to keep "awake," if the expression can be used in this case, and thereby stave off an attack. This succeeded only once, on the occasion of the last attack experienced, when, after a normal aura, nothing further followed, to my unspeakable relief.

Apart from the aura I did not have a true attack of migraine until I was 13 years old, when there were two, after which I remained free until the age of nearly 30, when fortification figures were seen unassociated with headache, on several occasions during a spell of hard reading.

Ætiology.

The number of causes suggested by many writers indicates that the condition is not clearly understood. Among those mentioned are rheumatism, anæmia, tubercle, adenoids, and "gouty gastritis," whilst some authorities suggest that there is usually a family history of neurosis, epilepsy, or migraine. None of these factors, except the last, apply in the case described, but it seems possible that the attacks are the expression of a form of migraine, the aura and visual images affording evidence in favour of this

view. Somnambulism is regarded by some writers as an associated disorder; but the two solitary occasions on which I walked in my sleep did not coincide with night terrors and were not associated with night terror phenomena.

Most writers seem to agree that there is no recollection of a true night terror, but it is highly probable that the cases they cite are pure nightmare, as indeed their descriptions suggest. An aura occurring during consciousness is not likely to be forgotten, even if the night terror itself were not remembered. The nightmare due to stifling by the pillow is definitely different and has also been experienced by the writer; adenoids seem more likely to cause this than a night terror.

H. C. Cameron regards night terrors as due to a form of acidosis, and claims to be able to cure them by the administration of glucose. Cyclical vomiting and the allied disorder migraine may be associated with slight acidosis, and the success of this treatment would in that case support the view that migraine may be an ætiological, or at least a related, factor. As, however, most children with night terrors have long periods of freedom, treatment of any kind is likely, apart from suggestion, to meet with apparent success, and the fact that only one attack occurs in a night seems definitely against the suggestion that acidosis bears any relation to the disorder. In fact each attack seems to be a little "brainstorm" on its own, and once it is over nothing further remains to mark its passage. What trigger fires it off in the first place we have yet to discover.

Conclusions.

1. Night terrors are well-defined phenomena bearing no relationship or resemblance to nightmares. 2. They may be preceded by a definite aura resembling migraine. 3. The visual images of a night terror never take the form of objects seen in real life. 4. There is definite recollection on waking. 5. The sensation that predominates is one of overwhelming fear that is out of all proportion to the apparent significance of the stimulus. 6. The terror never recurs in the same night. 7. These observations are compatible with the suggestion made in Garrod, Batten, and Thursfield's "Diseases of Children" that migraine may be a related factor.

I am indebted to Dr. R. D. Gillespie for valuable suggestions.

Medical Societies.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.

A MEETING of this Society was held on Feb. 1st, Dr. W. T. ROWE being in the chair, when Dr. JOHN FREEMAN read the following paper upon the

PATHOLOGICAL MECHANISM OF THE ASTHMA SYNDROME.

"Asthma syndrome" signifies here that family of diseases or disabilities of which asthma is such a conspicuous example. It will be convenient to have this list before us at the outset.

Bronchi and bronchioles	Asthma itself.
Air passages ..	Paroxysmal or vasomotor rhinitis; hay-fever is perhaps the best example, and, indeed, serves as a type for the whole syndrome for purposes of experiment.
Gut	Food idiosyncrasies—e.g., egg or fish sensitiveness.
Skin	Urticaria, eczema, ichthyosis; also mixtures of, and intermediate stages between, any of these three.
Subcutaneous	Angioneurotic œdema.
Kidneys	Functional albuminuria.
Joints	Paroxysmal hydrarthrosis.
Brain	Migraine and epilepsy.

There are almost certainly other symptoms, and I would like to put in tentatively:—

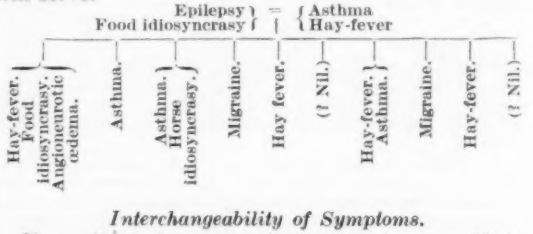
Skin	Dermographia; this is clearly connected with our group by heredity.
Gut	Paroxysmal colitis.
Lymphatic ..	White leg.

Now in looking at such a list one notices that some, at any rate, of these items are mere symptoms (urticaria and migraine, for example). I suggest that *all* these conditions are, or may be, symptoms of a particular abnormality, disorder, or kink in the immunological mechanism. It is true, of course, that the whole question can be surveyed from other standpoints: the psychologists, for example, make enormous claims; the metabolists have their own point of view; and the laryngologist thinks laryngologically about rhinitis, for example. If you ask an immunologist to talk he will state the pathological mechanism in terms of immunology.

Immunological Specificity.

This immunological disorder is a kind of hereditary and most capricious "anaphylaxy." The *specified* people who have it have in consequence blood circulating in their veins which, when mixed with some *specified* but quite innocuous substance, will make with it a poison mixture. This poison mixture promotes œdema or urticaria (by a very complicated mechanism), it may cause non-striated muscle to contract, and it promotes mucous discharge. It is these various reactions which build up the various items in the syndrome. Note that specified people react to specified foreign substances. This extreme specificity is a well-marked feature of immunological phenomena. An example will make this plain. A hay-fever patient is a man apart; a normal man can put into his own vein 100 times the dose of pollen which lays any hay-fever patient flat on the floor; it will circulate round, producing no symptoms whatever, the effect on him will be no greater than, say, the effect on a crocodile of 1000 times the human lethal dose of tetanus toxin. If at midsummer the normal man goes into sunny meadows during the week-end he will return on Monday morning feeling all the better for the outing, but he will have so much grass pollen circulating in his veins that a drop of his serum will set up a marked urticarial reaction when injected into the skin of the hay-fever patient. Or conversely, the injection of hay-fever serum into the skin of our week-ender will provoke the Prausnitz reaction which I shall mention later. Then, again, the grass pollen is specific; no other substance will bring on an attack of hay-fever in a hay-fever subject, though, as we shall see, he may have several other sensitisations going on at the same time. Pollen is the one substance which will make, with his serum, a poison mixture.

The underlying immunological disease is hereditary; indeed, it is doubtful if it can be acquired in any other way; but it is handed down not as hay-fever, asthma, epilepsy, &c., but as a tendency to an immunological kink which may give rise to any of these symptoms. It is true that sometimes one particular disability—e.g., hay-fever—tends to run in a family, but far more frequently the type of symptom varies from individual to individual; for example, an asthmatic father may have a child with bad migraine, who, in turn, may have children showing angioneurotic œdema, hay-fever, and so forth. Evidence of this can be multiplied to any extent, but one example will serve.



Interchangeability of Symptoms.

If our thesis is true, and these various manifestations are symptoms of some underlying lifelong

condition, we shall expect to find that they are correlated; they will alternate, or synchronise, or merge into one another, &c. This is exactly what happens. The life-history of an asthmatic patient frequently starts with food difficulties—e.g., difficulties of weaning, &c.; and special food idiosyncrasies may be accentuated to almost any extent and may persist through life. Often, however, these fade out, and we hear in early school-days of eczema; then, perhaps, hay-fever through early adult life; and bronchial asthma in old age. The symptoms may alternate; mothers will say, "I am really glad to see the eczema coming out, doctor, for I know the poor little thing will not have the terrible headaches." Or, on asking a patient how the asthma has been this last week, "Oh! I have been having the bumps (i.e., angioneurotic œdema) this week"; and then perhaps a week later the report will be "nettlerash this time, doctor, but now and then I have had attacks of asthma too." That these symptoms synchronise is an everyday experience; urticaria with food idiosyncrasies is almost the rule; and migraine is extraordinarily common with any of them. To look at this matter of synchronisation in another way, if we are anxious to find the supposed rarities, such as ichthyosis, paroxysmal hydrarthrosis, or functional albuminuria, it is only necessary to look through a biggish asthma clinic (such as the one at St. Mary's Hospital) to find that they are not at all uncommon, if one knows where to look for them.

Ringing these Changes on Hay-fever.

The artificially produced symptoms give, perhaps, the most striking proof that they all proceed from the immunological abnormality. As usual, hay-fever is our best case for experiment; normally, the pollen lands on the eyes, nose, and throat of the susceptible person, giving rise to the well-known clinical entity, hay-fever. This can be reproduced in say, December, by causing our patient to snuff up pollen. If a small quantity of pollen extract is injected into his skin, you will produce an urticaria surrounded by an erythema—the well-known dermal reaction in fact. If the pollen is given in his food or drink he will get abdominal symptoms, sickness, and diarrhœa (it should be noted, however, that it takes a large quantity of pollen to produce this reaction). If the pollen extract is injected into the vein (or subcutaneously for that matter), one is, so to speak, broadcasting the irritant over the whole body of the susceptible person, and varied symptoms follow; there is usually some urticaria in about seven minutes, with a tingling of the skin; equally common is an attack of angioneurotic œdema, generally in the face, but it may be in any selected part of the body; then perhaps migraine; if the patient is at all given to asthma from any cause he will almost certainly get an attack; vomiting and diarrhœa are fairly common; and with any really well-marked general reaction one gets albuminuria. (As albuminuria is a symptom which has not previously been described, it is as well to give details. The albumin is well marked in the urine an hour after the dose, reaches its height at about two hours after, and after this falls rapidly, showing the merest trace, or nothing at all, in four hours. I have found it as heavy as 0·2 per cent. in the two-hours specimen: the proportion of albumin to globulin being about 2 to 1—i.e., the proportion one would expect in a true functional albuminuria.) Once, by an injudiciously large dose of pollen vaccine in my hay-fever clinic, I have produced a fit of epilepsy. Symptoms of rhinorrhœa—i.e., the natural symptoms of hay-fever—though they occur, are not at all prominent, perhaps because both the patient and the doctor are distracted by more novel or alarming symptoms.

The Prausnitz Reaction.

One may make the disease artificially in the normal man. If the serum of a hay-fever patient is injected into a normal man's skin this injected area becomes and remains sensitised to pollen; and a reaction may be produced either by injecting pollen into this area or by injecting pollen into the blood stream and allowing it to be carried to the area. This disease by proxy, the Prausnitz reaction, has about it the elements of a crucial laboratory experiment, and it is worth while to give an example in illustration. If sera are taken from a hay-fever subject, from a horse asthmatic, and from an egg-sensitive subject respectively, and are injected into three several areas of the skin of a normal man we shall have three sensitised patches. Let us allow them all to lie fallow for a day or so and then inject into the vein of the other arm a good dose of pollen. Nothing will happen to the body generally, but where the hay-fever serum has been injected, and there only, will appear a reaction; this will approximate to urticaria or angioneurotic œdema, according as the serum has remained superficial or gone deep. If a day or so later we inject horse substance into the three areas, we should get a reaction only on the area injected with horse serum. Finally, our experimental man, who has been kept off all eggs in his dietary up to this moment, if he is made to drink an egg-flip will find a tingling in the "egg" area after 20 minutes, which will reach its height in urticaria in perhaps an hour and a half, thereafter to fade slowly.

The Localising Factors.

If all these varied symptoms may follow from the immunological kink, why do we sometimes get the lungs affected, sometimes the skin, or the gut, or the brain? Why, again, do the attacks suddenly come on with a run or stop as suddenly; in fact, why do they come on more at one time than another? First with regard to locality. When the irritant arrives in one definite spot—e.g., pollen on the mucous membrane, or food in the bowel—we shall naturally find symptoms arising in that area; they will only become general if the irritant is absorbed into and distributed by the blood. But when the poison is broadcast by the blood why should the symptoms be localised? Or, if you like to put it so, why are certain tissues sensitised and others not by the universally distributed poison mixture? No doubt there are factors here that we know little or nothing about; but very frequently indeed it is possible to discern trauma as a predisposing cause. Angioneurotic œdema is curiously and capriciously localised; no doubt the lips, eyelids, and to a lesser degree the tongue and throat offer special facilities for œdema; in waking hours these parts are always on the move; sometimes, too, there are angioneurotic swellings of the fatigued fingers of typists; and though this is perhaps not "trauma," yet one's mind plays with the idea of histamine. But, putting these particular swellings aside, the remainder seem to arise where there has been damage done, where the skin has been rubbed by the corsets or the braces; one patient described how an angioneurotic attack began at the point where a jagged tooth was scratching the side of his cheek. Eczema notoriously comes on in areas exposed to damage from wind, from washing, or from sweat. Cases of epilepsy which are clearly connected up with these other symptoms are frequently reported as only arising after "the baby was dropped on his head," or "after the old gentleman tumbled down the stairs"—these accidents furnishing the trauma. In migraine it looks very much as if eye-strain was often the localising factor. In angioneurotic and urticarial cases sometimes the patient will only have migraine accompanying these symptoms when there is an œdema of the scalp, suggesting that there is perhaps an œdema occurring on both sides of the skull bone. Lastly, asthma shows frequent traces of trauma, since it is reported so often as only occurring after bronchitis, pneumonia, or having been gassed; up to that time the patient had experienced merely migraine or urticaria.

The Timing Factors.

The timing of the various symptoms depends very largely, of course, upon the arrival of the foreign

irritant. People get hay-fever in June, not in December; they get food sickness 20 minutes after swallowing the specified food; an attack of cat asthma may depend upon the presence of a cat (though the dust of a room in which a cat has been is equally provocative). The commonest time for asthma to commence is in the night, usually on waking—that is to say 6 to 8 A.M.; this is due, no doubt, to the recumbent position and the consequent congestion and collection of secretions. It seems probable that these night asthmas are usually bacterial sensitisations; but the whole question of night asthma needs working over.

Adrenalin or pituitrin will lessen or stop attacks of all the symptoms we have been considering, and will often do it so dramatically as to suggest that the endocrines have been playing a large part in determining the onset or cessation of attacks. If one works through all the endocrine preparations on the market, testing them, for example, on the Prausnitz reaction, only two of them—adrenalin and pituitrin—will check the urticaria, and none of them will hasten or accentuate the reaction.

Nerve reactions and the psychical state of patients play a striking part—in the unphilosophical language of the patient they "cause the attack." Coming into a bright light, changing from hot to cold atmospheres, any smell, "even the smell of my dinner," any excitement, such as watching a dog-fight, hearing of a sudden death, emotional music, may easily precipitate an expected attack. When once an attack has been so caused, then suggestion comes into play. Suggestion, for example, may start an attack of hay-fever by the smelling of an artificial rose, or by the vivid description of a place where an attack has been produced previously. This psychical factor is so important that it is worth accentuating by an example. A lawyer experienced his first attack of urticaria during the extreme annoyance of just missing a railway train, and thereafter always had an attack when giving evidence in the witness-box; his first attack of angioneurotic œdema occurred while watching a particularly harrowing cinema film. No wonder the word "neurotic" gets emphasised in such cases; and yet both the urticaria and the angioneurotic œdema were completely stopped by treating his sensitisation. Naturally the psychologists are not slow to explain the whole syndrome from their point of view; they will claim that there is a specific trauma provocative of hay-fever, another one provocative of asthma, another one of angioneurotic, &c.; and one may grant to them that psychical influences may affect the area selected for attack—e.g., the lungs, skin, gut. So far as a non-psychologist may venture an opinion 100 hay-fever patients are (at any time other than midsummer) just as well balanced mentally as 100 doctors or 100 railway porters. This will seem unconvincing to the Freudian, and I refer him to the Prausnitz reaction. Here you have the trouble arising in the selected area of your experimental man; certainly the psychological apparatus has not been transferred from the original owner of the serum. And to clinch the matter we find that emotion in the experimental man at the moment of the experiment will profoundly affect the result of the reaction. It is convenient at this point to emphasise the fact that no variety of the asthma syndrome is demonstrable in the lower animals.[1] Also it is impossible to produce any variety of the Prausnitz reaction in them by injecting sensitive human serum, together with the appropriate foreign irritant. This failure is so striking as to make one suspect that it is perhaps the psychical factor which is wanting. The whole question needs further work, though it has received much already.

[1] Dr. Freeman mentioned that he had been trying to get positive evidence on this point for the last three or four years, and had uniformly failed, and that if anyone could help with facts they would be much appreciated. It was necessary, of course, to get much more definite evidence than that a dog was frequently sick, a horse had trouble with its breathing, or that an ox repeatedly sneezed or had urticaria.

Dr. Freeman concluded by saying that trauma, endocrine secretion, and the psychological state were important but secondary factors. The underlying mechanism behind all the varied symptoms under discussion was the inherited immunological kink. This connected them all just in the same way that the incapacity to face tubercle bacillus immunologically connected together lupus, phthisis, tuberculous cystitis, arthritis, meningitis, and so on. In fact, they were all one disease.

MEDICAL WOMEN'S FEDERATION.

AT a meeting of this Association held on Jan. 24th, Miss E. BOLTON, the President, in the chair, Dr. SIBYL R. EASTWOOD related the results of an investigation into the

Gastric Secretion and Other Digestive Factors in Rosacea.

Dr. Eastwood defined rosacea as essentially a chronic congestion of the facial skin, affecting mainly the central two-thirds of the face and leading to permanent vascular dilatation. Papules and pustules, eczematous scaling, ocular lesions, hypertrophy of the subcutaneous tissues leading to rhinophyma, though seen in varying degrees in the clinical picture, were to be regarded as complications of the underlying vascular condition. The eyes were affected far more frequently than appeared from the literature on skin diseases. Since Arlt described a case in 1864, there had been constant reports of cases in ophthalmological journals, and Dr. Eastwood explained this discrepancy first as due to rosaceal keratitis occurring often in mild forms of facial rosacea, and secondly to the greater importance attached by patients to a condition affecting their eyesight than to their appearance. It was not until the recognition, even now not general, of the relationship between the two that the cases had been freely interchanged between the eye and skin departments of hospitals.

Dr. Eastwood had been led to rosacea by her interest in the digestive system, and had hoped to obtain a series of patients with achlorhydria or extreme degrees of hypochlorhydria, as Barber and Ryle had reported this anomaly of gastric secretion as present in as many as 7 the 12 rosacea cases examined by them. In a series of over 50 cases of rosacea, seven of whom had ocular complications, Dr. Eastwood had found that digestive disturbance was present in nearly 90 per cent., that it was almost always "functional" in the sense that no organic lesion of the gastro-intestinal tract could be demonstrated. Fractional test-meals had been given to all patients, and 9 per cent. had shown achlorhydria, 24·5 per cent. hypochlorhydria, and 15·5 per cent. low normal curves, thus agreeing very closely with Brown's results in a similar series published in 1925. These results corresponded closely with those found in chronic arthritis and chronic cholecystitis by other observers. Flatulence, constipation, flushing after meals, and capriciousness in diet had been the commonest symptoms. From the X ray examinations made in many of these cases, it appeared that some degree of hypotonicity was common, though by no means universal. Marked dislike of meat had not been correlated with low acid secretion and had occurred equally with high normal and hyperchlorhydria curves—a point of much physiological interest. Focal sepsis had been found in many cases. Dysfunction or disease of the female genital organs had only been found in a few cases and as these had been cervicitis they fell into group of focal sepsis. The majority of the patients had had low systolic blood pressures. Whatever the type of digestive disturbance, its effective relief had been accompanied by relief of the rosacea. Hydrochloric acid in drachm doses with meals had had an almost magical effect in the patients with low or absent acid secretion, but it had also proved useful where no deficiency had been shown. Carbohydrate excess in diet had been a fairly constant finding, and its correction a potent factor in successful treatment.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.

AT a meeting of this Society, held on Feb. 2nd, Dr. DONALD HALL, the President, in the chair, a paper was read by Dr. L. A. PARRY on the

Trial of Mary Blandy

for the murder of her father by poisoning with arsenic. Dr. Parry first referred to various earlier cases of murder by poison—the Glenconner case in 1580, that of Henry Robson who poisoned his wife in 1598 by the introduction of arsenic into the vagina, and the Overbury mystery of 1615—and mentioned the inquest on Miles Sindercome who, for high treason, had been condemned to be hanged on the gallows till he be half dead, and then to be cut down and his entrails and bowels taken out, and burnt in his own sight, and who had committed suicide by poison to avoid this dreadful punishment. Sir Richard Napier and Dr. Fern had given very vague, indefinite, and unsatisfactory evidence.

Dr. Parry pointed out that the trial of Mary Blandy was the first case of murder by poison, so far as he could ascertain, in which medical evidence was given to prove the cause of death. The girl had been accused of the murder of her father in order to obtain his money and marry her lover, from whom she had received some powders which she gave to her father. According to her statement she had believed that she was giving him a love philtre to make him like her lover more. The evidence for the prosecution proved that this was not so, that she had deliberately poisoned her father, with full knowledge of her act. The chief medical witness had been Dr. Anthony Addington, the father of the celebrated statesman, Lord Sidmouth. His evidence showed that he had analysed some of the powders sent to Miss Blandy and that they had contained arsenic. But though a post-mortem had been carried out, no attempt had been made to examine the viscera for arsenic. The tests recommended at this time by the celebrated chemist, Dr. Black, of Edinburgh, had been few and not very different from those used at the present time. They had included a modified Reinsch's test. The best and most delicate test known at the present time was the electrolytic, which showed the presence of very minute quantities of the mineral. This test had first been used quantitatively in the trial of the Seddons in 1912. Miss Blandy had been found guilty and executed at Oxford. The method of execution at that time had been different from that of to-day. The criminal, or as was more often the case, the batch of criminals, had been drawn in a cart to the place of execution through a crowd of morbid sight-seers, and then, one after the other, had the halters adjusted. The cart in which they had stood, or the ladder which they had climbed, was removed and they had been left to die of strangulation. This had often taken quite a considerable time. Occasionally the executioner would take pity on the poor victims, and hang on to the legs, thus shortening the death agony. To-day the death factor was not strangulation; the sudden jerk of the fall caused a fracture-dislocation of the cervical vertebræ, and death was instantaneous. The knot of the rope was fitted close to the ear, as in this way it had been found that the dislocation was more certainly caused. The guilt of Mary Blandy had usually been accepted by the many who had written on her case. Dr. Parry mentioned a letter written by her just before her death, and a speech made by her on the scaffold, as was the custom at the time. In both of these she had firmly declared her innocence of any wrongful intent in giving the powders to her father. "All this is true, as I hope for eternal salvation and mercy from Almighty God, in whose most awful and immediate presence I must soon appear." Whatever one's views of a future state, it was admitted by all that the last few hours of life are very solemn ones. It was difficult to understand how Mary Blandy, if she were the wretched parricide pictured at her trial, could have uttered such words a few moments before death. Was she really guilty?

EDINBURGH OBSTETRICAL SOCIETY.

A MEETING of this Society was held on Jan. 11th with Prof. R. W. JOHNSTONE in the chair. A paper was read by Mr. DAVID LEES on

VULVO-VAGINITIS,

in which he analysed the cases which had come under his observation in a period of five years, 1922–27. A total of 146 cases were dealt with and were divided into the following age-groups:—0–1 year, 7·4 per cent.; 1–5 years, 39·2 per cent.; 5–10 years, 44·9 per cent.; 10–15 years, 8·4 per cent. The incidence of vulvo-vaginitis in Edinburgh, said the lecturer, had been augmented by a recent epidemic in a children's institution where it had spread rapidly and proved very contagious. In the great majority of cases (40 per cent.) the source of the infection could not be ascertained; in 13 per cent. of the cases the patients were reported to have been assaulted, but in only a very small proportion was this proved; 15 per cent. of the cases were epidemic in origin, and in 32 per cent. the infection was traced to others in the family. Mr. Lees described the symptoms and signs of the disease and drew attention to the frequency (99 per cent.) of involvement of the urethral canal in acute cases. Every vaginal discharge in children must be looked on with suspicion and treated as if of gonococcal origin, until at least three bacteriological tests had proved negative, under conditions favourable for the detection of the gonococcus. In chronic cases repeated films and cultures were necessary and in resistant cases direct films or cultures must be taken from the cervix. In 73·7 per cent. of the cases gonococci had been found; in 6·6 per cent. gonococci and other organisms, and in 19·7 per cent. secondary organisms only. In acute cases the gonococcus had been demonstrated in over 98 per cent. of cases. The more acute signs of disease disappeared rapidly with treatment, but the parents should always be warned that a long time was required to eradicate the disease and that relapses were apt to occur unless the patient was kept under treatment. Hospital treatment and isolation of the patient from other children was recommended wherever possible.

Treatment.

The chief therapeutic measures recommended were hot antiseptic and alkaline hip-baths and daily lavage of the vagina and urethra. In older children the vagina was dried by swabbing through a speculum and the parts were dusted with dermatol powder; in younger children, when a speculum could not be introduced through the hymen, instillations of an antiseptic dissolved in glycerine were recommended. The antiseptic preparations recommended were ¼–1 per cent. picric acid in glycerine; ¼–1 per cent. silver nitrate in glycerine, and ¼–½ per cent. chloramine-T in glycerine. The instillations were supplemented by the use of small medicated bougies of these and other substances. If it were not possible to irrigate the urethra small urethral bougies, with chloretone added to ease the pain, were inserted daily. Repeated changes of the antiseptic were advised and it was recommended that in every case the vulvar surface should be left as dry as possible by dusting it with a compound dermatol powder. Efficient treatment depended more on the meticulous care with which it was applied than on the medicament used. In every case it was essential:—

(*a*) To establish good drainage from the urethra, vulva, and vagina.

(*b*) To produce a slight hyperæmia of the infected parts by hot hip baths and hot vaginal douches.

(*c*) To use a sterile all-glass catheter, with lateral perforations, so as to spread the antiseptic over the vaginal wall during the douche and prevent the infection being carried to the cervix.

(*d*) To dry the parts subsequent to douching or alternately to instill the vagina with an antiseptic solution in glycerine.
(*e*) To treat the urethra in every case.
(*f*) To examine and treat the rectum if infected.
(*g*) To prevent the child from conveying the infection to others and to its eyes.

Adjuvant methods of treatment were used in both acute and chronic cases, and of these detoxicated and autogenous vaccines proved most serviceable. The child tolerated and responded well to vaccine therapy.

In the series of cases reviewed the following complications arose :—

	Per cent.
Gonococcal infection of the eye	8·3
Infection of the Fallopian tubes and pelvic peritoneum	5·5
Infection of the rectum	2·7
Non-specific ulceration of the vulva	1·8
Acquired syphilis of the vulva	1·8
Cystitis	0·9

No cases of arthritis were met with. Coincident syphilis was met with in 7·5 per cent. of all the cases.

In coming to a diagnosis of cure it was essential to observe cases over long periods, and to examine repeated films during this period of observation. The standard of cure aimed at in every case should be :—

(1) Clinical cure and no sign of clinical relapse after suspending all local treatment. Local treatment must be carried on for at least three weeks after apparent clinical cure.
(2) Bacteriological cure in three successive smears taken at intervals of one week during treatment, and in three subsequent weekly tests taken after suspending treatment.
(3) Clinical and bacteriological tests at intervals of one month over a period of three months subsequent to the attainment of (1) and (2).
(4) If there was any doubt as to the clinical condition or bacteriological reports, administration of a provocative vaccine and a repetition of the tests both by direct film and by culture was indicated.
(5) If there was neither clinical nor bacteriological evidence of disease during a period of three to four months after cessation from all treatment the case might be considered cured.

In trying to attain this standard the following results were obtained in the series of 146 cases reported :—

Average duration of treatment and tests for cure of gonococcal cases in those now completed (87 cases)	7	months
Average duration of treatment and tests for cure of vulvo-vaginitis cases not proved gonococcal (21 cases)	2	,,
Cases still under treatment, but presumed cured, which have now been under treatment and tests for cure for a period of five months	13	cases
Cases still under active treatment with infection still present	18	,,
Cases which defaulted while still showing signs of infection	7	,,

Puerperal Hæmorrhage.

Dr. G. D. KENNEDY then gave clinical notes of three cases of puerperal hæmorrhage. These cases were of interest as the bleeding was very severe in each case and did not occur until after the tenth day of the puerperium, the dates of occurrence being the tenth day, fourteenth day, and sixth week respectively after delivery. No definite cause was found, even after thorough examination under chloroform and curettage. In each case, however, a retroversion was present, which was the more interesting as on dismissal from the maternity hospital in all cases the uterus was anteverted. In no case was there any apparent infection during the puerperium. In two cases the mother was not nursing her baby and therefore the hæmorrhage might have been the return of an early menstruation. Dr. Kennedy thought that as retroversion was common to all it must have something to do with the hæmorrhage. He could, however, find no record anywhere of a simple retroversion in the puerperium causing so severe a hæmorrhage.

WESTERN OPHTHALMIC HOSPITAL.—This hospital, in the Marylebone-road, London, is to be rebuilt. The existing building is said to have been erected by George III. as a country residence for his children. It is in bad condition and extremely crowded and inconvenient. The proposed new building will cost £40,000.

Reviews and Notices of Books.

SAHLI'S CLINICAL METHODS.

Lehrbuch der Klinichen Untersuchungsmethoden für Studierende und praktische Aerzte. Seventh edition. By Prof. H. SAHLI, Director of the University Medical Clinic in Berne. Vol. I., first half. Leipzig and Vienna: Franz Deuticke. 1928. Pp. 496. M.26.

THE new edition of Sahli ends off in the middle of a sentence on p. 496, but that will not prevent the initiated from reading the volume up to that point with the liveliest interest, for the author is no mean stylist and among the greatest living authorities on physical examination. He admits frankly that literary composition is to him an absorbing interest, applying to himself the following words of a popular German novelist: "The reader may smile over it, but for us authors writing is a madly exciting business, a voyage in the tiniest boat on the high sea, a lonely flight through infinity"; and although the publisher may suffer—the author mentions "unending corrections" in his manuscript—the reader is blessed in the assurance of knowing exactly what Sahli wishes to tell him. At first sight his book may seem to be the ordinary collection of bedside methods gleaned without critical faculty from all sources, but study will soon discover that Sahli's methods have been worked out largely by himself and his staff at a clinic run on continental lines and visited by graduate students from all parts of Europe and indeed of the world. Subjectivity enough will be found in the present volume, for Sahli expresses a horror at the practice of setting down contradictory views without indication of the writer's bias, for "in medicine," he writes, "pretty much everything is stated which it is possible to state," and such roughage he regards as unsuitable for student diet. The present instalment of the book covers the examination of the patient's general condition, of his skin, the determination of temperature, the behaviour of respiration, and the various methods of investigating the circulatory system. A section on hæmodynamic methods is a monograph in itself. Sahli holds very precise views in regard to the mechanism of the circulation and is prepared to justify them by exact methods of physical examination; in his hands the hæmobolometer has given interesting results. To these we may return when publication is complete, and may content ourselves now with recommending every student and practitioner of medicine who can read German to make acquaintance with physical examination through Sahli's eyes and fingers.

EXPERIMENTAL BIOLOGY.

Factors Affecting the Distribution of Electrolytes, Water, and Gases in the Animal Body. Lectures delivered at Rutgers University under the Luther Laflin Kellogg Foundation. By DONALD D. VAN SLYKE, Ph.D., Sc.D., Member of the Rockefeller Institute for Medical Research. London: J. B. Lippincott Company. 1927. Pp. 62. 10*s.* 6*d.*

THIS monograph deals with factors affecting the distribution of electrolytes, water, and gases in the animal body. The main theme of the work is based upon Prof. L. J. Henderson's conception of blood as a physico-chemical system, and the method of interpreting the reactions of this system is the nomographic method. Types of nomograms used in the work are in the main Cartesian, but some of the results are expressed in the form of d'Ocagne alignment charts. The subject is extremely complicated, and can only be followed by those familiar with this type of work. The volume is of definite value in that it collects under one cover the recent work of Dr. Van Slyke and his colleagues, and at the same time forms a very valuable extension to Prof. Henderson's investigations.

PHYSIOTHERAPY.

A Practice of Physiotherapy. By C. M. SAMPSON, M.D., Formerly of the Physiotherapy Service, Walter Reed U.S. Army General Hospital, Washington, D.C. London: Henry Kimpton. Pp. 620. 45*s.*

THIS book is the successor to the author's "Physiotherapy Technic," which was published in 1923. Many additions have been made, including a therapeutic index. The author writes most fully on diathermy and high-frequency currents; about one-fifth of the book is devoted to these subjects. Static electricity is fully considered in a chapter of 47 pages, while 60 pages are devoted to ultra-violet light therapy. Other forms of electrotherapy and physiotherapy are briefly considered. Special chapters deal with acute gonorrhœa in the male, peripheral nerve wounds, arthritis, locomotor ataxia, pyorrhœa alveolaris, and hay fever.

The author writes fully on technique and gives detailed descriptions of the methods which he has found most satisfactory. On certain matters his teaching is peculiar. He distinguishes two methods of applying diathermy, one for procuring the stimulating effects of heat, the other for producing sedative effects. The former he recommends for pathological conditions such as non-uniting fractures. He insists that diathermy currents should be delivered from the machines at a higher voltage than that which is customary in many forms of apparatus now constructed because, he says, currents at relatively low voltage produce little heat in the deepest parts of the body. He gives description of an occasion when he was treating the prostate of a medical friend with a high-voltage diathermy machine. The current had reached a value considerably lower than that which produced the maximum bearable heat when low-voltage currents were used, but was sufficiently objectionable to cause the patient to protest with vigour. Dr. Sampson insists on the importance of learning and practising correct technique and the futility of first connecting the patient to the source of energy and then setting the machine in operation.

The book is written throughout in a breezy and colloquial manner. It is scarcely suitable for the beginner, but the more advanced reader will find much that will interest him and still more that will amuse him. Dr. Sampson has had wide practice in most forms of physiotherapy and he writes almost entirely from his own experience.

Physical Treatment in Diseases of the Eye, Ear, Nose and Throat. By ABRAHAM R. HOLLENDER, M.D., Attending Oto-laryngologist, American Hospital of Chicago; and MAURICE H. COTTLE, M.D., Attending Oto-laryngologist, Illinois Masonic Hospital, Chicago. London: J. and A. Churchill. Pp. 307. 21*s.*

Dr. Hollender and Dr. Cottle, who are in charge of the oto-laryngological departments of two large hospitals in Chicago, have acquired considerable experience in the use of physical agents, in the treatment of diseases of the eye, ear, mouth, throat, and nose, and have incorporated their findings in this comprehensive work.

In the first part they explain briefly the meaning of the technical terms used, and the nature and properties of the various agents. The next two parts deal respectively with the treatment of diseases of the eye and ear. The treatment of diseases of the nose and accessory sinuses is then described, and subsequently the diseases of the mouth, pharynx, and larynx are considered. Finally the authors deal with borderline diseases; these include headache, hyperæsthetic rhinitis, seasonal hay fever, asthma, and certain diseases of the eye, ear, and nose, which may have a causal relationship to disturbances of the endocrine system.

Physical agents have been extensively employed in recent years in the treatment of diseases of many regions of the body, but in oto-rhino-laryngology and ophthalmology little attention had hitherto been directed to physiotherapy in spite of the need for more effective methods of treatment. By careful clinical investigations Dr. Hollender and Dr. Cottle have shown the help that may be derived from diathermy, ultra-violet light, the galvanic current, and other physical agents in the treatment of diseases which respond badly to certain therapeutic agents. In early cataract negative galvanism is recommended as well as diathermy, and it is claimed that considerable benefit can be derived. In selected cases of glaucoma the authors state that diathermy and galvanism may prove of inestimable value. They have investigated the effect of diathermy on the normal eye, using tonometers, one eye being subjected to the heat and the other serving as a control. A lowering of tension was demonstarted after an application of diathermy for half an hour.

The authors speak with restraint throughout the book and do not recommend physiotherapy where surgical or medicinal treatment can produce satisfactory results. The volume is well printed and illustrated, and its contents form a valuable contribution to the subjects in which the writers specialise.

ORGANIC INHERITANCE IN MAN.

By F. A. E. CREW. London and Edinburgh: Oliver and Boyd. 1927. With 36 text figures. Pp. 214. 12*s.* 6*d.*

William Withering (1741–1799), to whom, among other things, we owe the introduction of digitalis to the pharmacopœia, was a man of implacable curiosity and industry. It is appropriate that one of like spirit should have been chosen to give the first Withering memorial lectures in the University of Birmingham. Out of them has emerged this excellent book. It is useful, firstly because it gives a particularly clear account of the theory of Mendelian inheritance and the genes on which it may be assumed for the present to depend, and secondly because it is written with special reference to human abnormalities of which more than 50 pedigrees are given. Medical men are situated in a position of peculiar advantage for collecting the further data which are so much needed; we hope they will read the book and become sufficiently interested to help to forward the work it outlines.

AMERICAN ILLUSTRATED MEDICAL DICTIONARY.

Fourteenth edition. By W. A. NEWMAN DORLAND, M.D., F.A.C.S. London and Philadelphia: W. B. Saunders Company. 1927. Pp. 1388. 35*s.*; or with thumb index, 37*s.* 6*d.*

THE fourteenth edition of Dorland does not differ in any essential features from the thirteenth, which was published two years ago, except that the name of Dr. E. C. L. Miller, professor of bacteriology and biochemistry in the Medical College of Virginia, appears on the title-page as collaborator with Colonel Dorland; but we learn from the preface that many definitions have been rewritten in accordance with the latest terminology, and over 2000 new words have been added. Therewith the volume has gained some 44 pages in length although the price remains the same. It would be a forlorn hope to try to find errors of omission or commission in this edition; we take it kindly that each time we have called attention to a missing word the editor has supplied it in the next following issue of the dictionary—thus now, and at length, the reader is properly orientated in the identities of Schwarz, Schwartz, and Schwartze. The only feature that possibly calls for criticism is the selection of line drawings, of which more than a hundred have been added to the present edition. Various kinds of flies and moulds are now illustrated in this way, and these may have some practical value, but we doubt whether a diagram of a gastro-enterostomy, or a photograph of varicose veins of the leg is worth the space allotted. It would be a pity, we think, to turn an admirably complete dictionary into an imperfect encyclopædia. However that may be, we doubt not that Dorland will maintain its popularity.

UNIVERSITY COLLEGE.

Centenary Addresses by the late E. H. STARLING, OLIVER LODGE, R. W. CHAMBERS, J. ROSE BRADFORD, J. A. FLEMING, J. M. COLLIE, G. K. CHESTERTON, J. E. G. DE MONTMORENCY, Bishop TEMPLE, H. A. L. FISHER, GREGORY FOSTER, and MARY BRODERICK. University of London Press. 1927. Pp. 303. 12*s.* 6*d.*

AMONG the other celebrations of the centenary of the foundation of "the accursed Academy in Gower Street" were twelve orations delivered by various distinguished people, some of them surveying the progress of a hundred years in their several branches of knowledge, others commemorating the establishment and maintenance of freedom in teaching and learning. They can be bought separately, but it was a happy idea of Prof. Chambers to bring them together in one volume; in it one may read of most of the aspects under which University College has steadfastly upheld university education in London. It is, perhaps, not quite fair to detach them from the settings in which they were originally delivered, but as they stand in print those of Prof. Chambers and the Provost stand out in the humanities and those of Sir Oliver Lodge and Prof. Fleming in the sciences; Mr. Chesterton is not at his best, and the volume ends with an admirable contribution from Dr. Brodrick on "those hussies."

EXPOSURES OF LONG BONES AND OTHER SURGICAL METHODS.

By ARNOLD K. HENRY, M.B., B.Ch. Dub., F.R.C.S.I. Bristol: John Wright and Sons, Ltd. Pp. 80. 10*s.* 6*d.*

THIS little volume bears in every line the marks of original observation. Whether other surgeons will or will not agree with the methods described is a matter of secondary importance; they are invariably original and suggestive. The book covers a wide range of subjects and includes exposure of the long bones, new methods of exposing the vertebral and subclavian arteries, the excision of the sympathetic ganglion for angina, and an entirely new technique for reaching the pituitary gland. It thus compresses into small compass a large amount of useful and original observation.

ENCEPHALOGRAMS IN CHILDREN.

Uber Encephalographie im Kindesaller. By Dr. TH. BREHME, Assistant, Heidelberg University Children's Clinic. Berlin: S. Karger. Pp. 50. M. 4.20.

THIS monograph is an important addition to the literature on the subject of encephalography. Of the three possible routes of air injection into the brain cavities (ventricle puncture, suboccipital puncture, and lumbar puncture) the author has confined his attentions to lumbar puncture, and by carrying out the procedure in 45 children has shown that it is a safe and successful method. He found that the after-effects were slight and transient; temporary headache was the rule, but there were no instances of collapse or severe symptoms. An anæsthetic was rarely necessary; his technique is simple. The 45 radiograms which he publishes show that the ventricles can be perfectly outlined by this method and that valuable indications may result therefrom. Surgeons in this country appear to favour direct ventricular puncture owing to the certainty and to the information which may be gained from the actual operation, especially in internal hydrocephalus. In the latter condition, when due to occlusion by meningitis or tumour, the lumbar method naturally fails to outline the ventricles, but the author claims that failure to outline is, in itself, pathognomonic, since there is no record of failure to demonstrate the ventricles in normal cases by his method.

We commend the monograph to the attention of neurologists, and to radiologists interested in the interpretation of encephalograms. The X ray appearances are sometimes difficult to interpret; sometimes such definite variations from the normal occur that diagnosis is confirmed. The inclusion of normals is helpful. Dr. Brehme has done a valuable piece of straightforward research work, which may well give an impetus to wider investigations along the same line.

TISSUE CULTURE.

Gewebezüchtung. Second edition. By ALBERT FISCHER. Munich: Müller and Steinicke. 1927. Pp. 508. M.37.50.

TO all engaged in tissue culture work this book is a mine of information. All aspects of the subject are considered and a really good bibliography is appended. After an introductory and historical chapter the composition of culture media and their preparation are described, and an account given of such work as has been done to investigate the food conditions essential for growth. A useful summary follows. The technique of cultivation is described in detail so clearly that no worker should fail to obtain results if he follows the directions given. The rest of the book treats with the same wealth of detail so far as it is known, the physiology of growth in vitro, the minute anatomy of the cell, the cultivation of different tissue cells outside the body and their behaviour under artificial conditions, and many experiments which have been made to elucidate the problems of pathology and immunity, and neoplastic growth. We have not found elsewhere so much information upon tissue culture collected together in one volume.

JOSEPHINE BUTLER.

Her Work and Principles and their Meaning for the Twentieth Century. By Dame MILLICENT FAWCETT. London: Association for Moral and Social Hygiene. 1928. Pp. 164. Cloth, 2*s.* 6*d.*; paper, 1*s.* 6*d.*

IN Parts I. and II. of the League of Nation's Experts' Report on the Traffic in Women and Children, the campaign associated with the name of Josephine Butler is briefly referred to, but as she died over 20 years ago it is possible that to many her name is the only knowledge which they possess of her. Yet she was for a period one of the most talked about women in England, while she laid the foundation for social reforms upon which, and none too soon, beneficial changes have been erected. Dame Millicent Fawcett's book is published in recognition of the centenary of Josephine Butler's birth. It sets out her family life sufficiently to show the influence of early years upon her in originating and confirming her religious impulses and in dowering her with pity and courage. But she was about 40 years of age when her name became prominent. Her husband was holding an educational post in Liverpool and while there she helped to establish homes and refuges for fallen women. This led to her coöperation in the agitation which had just begun for the repeal of the Contagious Diseases Acts, an agitation in which she became the most prominent, the most admired, and the most abused protagonist. She gave evidence before the Royal Commission which was appointed in deference to the strong feelings aroused by the representations of herself and her colleagues, and was energetic in denouncing the traffic in young girls between Belgium and England, and the working of organised prostitution in India. The official documents of the League of Nations have now justified many of the contentions, 40 years old, of Josephine Butler and those who coöperated with her, like James Stansfield, Daniel Cooper and William Stead. Dame Millicent Fawcett closes her book with the quotation: "The seed which she has sown can never die," and there is no doubt that the general arguments that were used formerly in behalf of State-recognised prostitution would never be employed to-day, even though there is medical support for certain antivenereal measures, which she might have reprobated. We have here a pious story movingly told.

THE LANCET.

LONDON: SATURDAY, FEBRUARY 11, 1928.

THE INTERNATIONAL OFFICE OF HYGIENE.

THE International Sanitary Convention of Paris, 1926, placed a number of important new duties on the Permanent Committee of the International Office of Hygiene, and the steps which that Committee is taking to fulfil those duties are of interest. The Convention lays down agreed lines of principle and international practice in dealing with the prevention of transmission of plague, cholera, yellow fever, typhus, and small-pox at sea and land frontiers. A primary requirement for this purpose is intercommunication of facts and figures regarding the prevalence of these diseases. The methods prescribed to this end in previous conventions, which were cumbrous and often ineffective, are now to be changed, and the new system makes the International Office in Paris the responsible centre for the collection and distribution of the desired information. The problem which has been presented to its committee and director in this matter is, however, none too easy. In certain cases, rapidity of transmission is the first consideration, and all modern means, like cables and wireless, broadcasting, or air mails may have to be called into service, and special codes utilised. On the other hand, the Convention is world-wide in its application, and the mechanical use of these methods to inform every country of every kind of foreign outbreak or epidemic would be futile and extravagant. It has, moreover, to be remembered that the Convention affirms the principle that information as to foreign outbreaks does not carry with it any necessity of action, and that it rests with each country to apply the specified measures according to its own appreciation of the needs of the particular case. Hence information in the form of detailed communiqués regarding the circumstances in which an epidemic disease has appeared, its type, and the action taken, are often of greater ultimate importance than telegrams of notification figures, even though it necessarily arrives more slowly.

A memorandum relating to the work of the last session of the Permanent Committee of the International Office at Paris, which we have obtained from its director, Dr. POTTEVIN, shows that the solution is being sought by a system of utilising "regional" offices from which information in detail can be sent rapidly to the interested countries in the region, and be summarised in code for periodic transmission to the Paris centre. Here the Committee has had ready to its hand a clause in the new Convention which empowers it to make agreements with the League of Nations Health Organisation and similar international health bodies. Great success has attended the system by which the League of Nations, from its office in Geneva, and from its branch office for the Far East at Singapore, now collects official returns regarding infectious diseases from many public health administrations, and publishes them in "Epidemiological Intelligence Bulletins," which are already widely known and used. To avoid duplication, these bulletins are to be recognised as an official means of transmitting information supplied under the International Convention, and will include special communications supplied to the regional bureaux from Paris. For the Americas, a somewhat similar service is already undertaken by the Pan-American Sanitary Bureau at Washington, and the last Pan-American Conference, held at Lima in October, accepted the proposal that it should in future also act for the Paris office under the Convention. Another and equally valuable agreement has been negotiated with the International Quarantine Board at Alexandria, which will work as a regional bureau for countries of the Near East and the Levant—a regional system whose value was demonstrated last year in connexion with the outbreak of cholera in Iraq and Persia. Supplementary arrangements, for example with the Australian Government for collection and codification of information from islands in the Pacific Ocean, are also being considered. The requirement that ships should be regularly overhauled at approved ports, in order to ascertain if they require measures of "deratisation"—the term, in French at least, seems to have become official—entails on the International Office of Hygiene the duty of giving rulings, after consultation between its delegates, on various details where a common practice must be adopted in the interests of shipping. Among these is the form of certificate of "deratisation" or "exemption from deratisation" which will in future have to be included among the ships' papers. A convenient stock form for this purpose, based on the United States model, has been recommended. The Office has also decided to undertake the publication of an annual directory relating to quarantine measures, sanitary equipment of ports, and like matters throughout the world—a volume which promises to be of great convenience to administration and shipping. All this preparatory work will greatly facilitate the smooth working of the new Convention when the formalities of its ratification have been completed and it is in full operation. Allied questions, also considered, were proposals for the official recognition of ships' doctors in quarantine work, the use of wireless to convey messages regarding the health of ships to the next port of call, and the instructions and assistance in medical emergencies which can be furnished to the masters of vessels not carrying a doctor. On the last-named subject, which is now also receiving attention from a special committee of the British Medical Association, the committee of the Paris office is collaborating with the League of Red Cross Societies.

During the same session the Permanent Committee according to the terms of the Geneva Convention of 1925, advised the Health Committee of the League of Nations on the additional narcotics which should be scheduled as drugs of addiction, and decided to deal at an early date with the evidence which is being collected regarding the undesirable use of benzoylmorphine and other morphine esters. The most interesting part of its proceedings, however, were, as usual, the contributions from the different official delegates or rapporteurs on new features of epidemiology or administration in their respective countries, most of which ultimately appear in its monthly publication, the "Bulletin of the Office International d'Hygiène Publique." The reports on the prevention of beri-beri in the Dutch East Indies by means of vitamin extracts, on the antituberculous vaccination of adults in Norway by B.C.G., on changes in Japanese administration against venereal diseases and for the control of medicaments, and on the new insurance system against tuberculosis which is being established in Italy are a few examples of the utility of these periodical conferences. An instructive account was given by Dr. N. M. JOSEPHUS JITTA of the progress

of investigations in Holland into the occurrence of encephalitis after vaccination, a subject on which the Committee will shortly receive further enlightenment from a special associated commission on small-pox and vaccination questions appointed by the League of Nations Health Organisation. The delegate from South Africa referred to recent work establishing the viability of the plague bacillus in the flea, apart from a human host, for as long a period as three or four months, while the British delegate presented the experience of the Liverpool port sanitary authority in gauging the degree to which ships are infested by rats. The facts supplied as to recent cholera extension included the estimate of about 15,000 as the total deaths during its extension to French Indo-China in 1926—a figure which it is claimed would have been very largely increased but for the extensive and organised system of anti-cholera vaccination put in force in the infected areas. The results of the same vaccination, and of ingestion of bilivaccin, in India, and the apparent success of vaccination in preventing the extension of cholera in Persia were also described. The measures taken by the British authorities in Iraq to deal with the outbreaks which began last July in the ports of the Persian Gulf, and the value of the energetic action by which its progress up the twin rivers into the interior was checked, received special attention, as well as the question of the need for new methods of control to cope with the many new lines of communication which have been opened up in these Near Eastern countries. Reference may also be made, in conclusion, to an instructive communication from the Roumanian delegate regarding a widespread outbreak of epidemic poliomyelitis which affected that country during 1926–27, and to the accounts of yellow fever in Africa which are contained in the December number of the Bulletin.

FŒTAL ARCHITECTURE.

WE publish this week an account by Mr. VINCENT PATRICK of a case of thoracopagus which was admitted recently to St. Thomas's Hospital, and one of craniopagus which came a little later under the care of Dr. H. C. CAMERON at Guy's Hospital. Both cases have attracted public attention. From the most ancient times man has been fascinated and attracted by all departures from the usual or the normal, although when they become of frequent occurrence he accepts them as he accepts the rest of his environment. The very derivation of the word monster indicates quite clearly how the Romans regarded the birth of a child which showed any conspicuous abnormality, and the continued use of the word is to be deprecated. The term is entirely unscientific and has never been defined in a satisfactory manner. CHARLES DARWIN defined a monstrosity as some "considerable deviation of structure, generally injurious, or not useful, to the species," but such a definition is too vague to be regarded as acceptable and, indeed, it is time wasted to attempt a definition. It would be better to abandon the use of the term entirely, convenient and occasionally descriptive as it may be, and to refer to the individual cases by their appropriate designations. All such cases are examples of disordered or partially arrested growth, and they are of scientific interest in so far as they provide one avenue of approach to the study of normal growth. The problems which are presented by growth and differentiation are amongst the most difficult that confront the embryologist to-day, but the darkness with which they have been surrounded for so long is gradually being illuminated by experimental work, especially in the fields of embryology and pathology. Until the processes of normal growth are understood and defined, we cannot hope to solve the allied problems of abnormal growth. It is true, as we must all admit, that much has been and can still be learnt with regard to normal growth by the careful study of cases where growth has proceeded in an abnormal manner, but the inferences to be drawn from such a study are robbed of much of their value by our ignorance of normal processes. In the early stages of the development of the fertilised ovum there is apparently a brief period during which it may be said that a very large number of the cells derived from the original ovum retain all the potentialities of the latter and, when transplanted into favourable surroundings, they are capable of producing another embryo. When we consider the processes of abnormal growth, as exemplified by the occurrence of conjoined twins from time to time, we ought not to experience surprise that such a mistake should be possible; but bearing in mind the potentialities of the cells with which we have to deal, we ought rather to marvel that Nature departs so rarely from the orderly and regular character of her course. That such is the case is due to the fact that the stage of unlimited potentialities of the cells is closely followed by a stage in which there is organisation and control of their further growth. It has been shown for amphibian larvæ that the cells which lie in the dorsal lip of the blastopore exercise an important organising and controlling influence in the earliest stages of differentiation, and it is to their influence that the orderly progress of subsequent developmental changes is to be attributed.

That one group in a living mass of cells should exercise a regulating and controlling influence over a neighbouring group, an influence which may be to some extent reciprocal, has been shown by the work of experimental embryology and tissue culture. Transplantation of the optic vesicle from its normal position to a site under the ectoderm elsewhere in the body has been repeatedly and successfully carried out. The ectoderm over the transplant develops a crystalline lens in the normal way, but no lens develops on the side of the head from which the optic vesicle has been removed. Pure cultures of epithelial cells show no tendency to adopt a definite morphological form until they are brought into contact with fibroblasts, when they become differentiated into renal tubules, thyroid acini, and so on, corresponding to the source of the epithelium in the first place. It is now well recognised that identical twins develop from a single ovum and that the complete cleavage which separates the two must occur before any definitive embryonic area or disc can be determined. The production of uniovular twins in man may be regarded as one of Nature's successful experiments, but at the same time we must remember that what is an experiment in man is the general rule in some other mammals. In one of the armadilloes, for example, the fertilised ovum always gives rise to four separate embryos, which are all of the same sex. But it would appear that the time period during which this experiment can be carried out successfully is relatively short, and its delayed attempt results in the disastrous failures which are represented in teratology by a large group of malformations. Experimentally, it has been found possible to divide the fertilised amphibian ovum and produce twin embryos up to the stage of the completion of the gastrula. Attempts to produce twin embryos experimentally at a later stage have resulted only in the production of duplication of some part or parts of the body. The type of

malformation depends in part on the plane and degree of cleavage and in part on the subsequent development of the two conjoined embryos.

Cases of craniopagus, in which both embryos develop normally, represent an attempt at the production of uniovular twins which has all but succeeded. The two are completely separated and perfectly formed, save that the two heads are joined together by their vertices, frontal, or occipital regions as the case may be, the brains being separate and acting independently of one another. Cases of omphalothoracopagus, on the other hand, represent attempts that have been less successful, and there is usually direct continuity of the two hearts, while the pericardial, pleural, and peritoneal cavities are common to both. In the two types, to which reference has been made, both twins develop symmetrically, but asymmetrical development may also occur. Embryologically there is no initial difference between symmetrical and asymmetrical conjoined twins. In the latter variety one embryo continues to develop in the normal way, but the development of the other is retarded and it remains in a more or less diminutive form, a parasite dependent on its autosite for its blood- and nerve-supply. It is a curious law of ontogeny that whereas in the early stages cleavage is the keynote to development and growth, subsequently structures which are situated symmetrically as regards the median plane or long axis of the embryo and which subserve the same functions show a very strong tendency to fuse with one another. The fusion of the two primitive heart tubes is a striking example of this tendency, and it is just possible that in cases of conjoined twins some of the connexions may be of this secondary nature. The relationship between conjoined twins and teratomata, if there be any, is quite uncertain. The subject is further complicated by the fact that teratomata of the sexual organs are not uncommon, especially in the female, whereas other somatic teratomata are very great rarities. Such a difference in relative frequency suggests the possibility that the two groups of teratomata may have totally different origins from one another. Fortunately, of the many forms of symmetrical conjoined twins, it is only those belonging to the ischiopagus, xiphopagus, and sternopagus groups that are likely to survive their birth by any prolonged period. Cases of craniopagus and ischiopagus must be kept lying down and they naturally fall an easy prey to any slight infection. Sir JOHN BLAND-SUTTON has recently drawn attention to the desirability of endeavouring to separate the autosite from its parasite in cases of asymmetrical conjoined twins,[1] and in view of the miserable nature of the existence which symmetrical conjoined twins may have to endure, it is not too much to say that it is the duty of the surgeon to attempt their separation, if he believes that there is any chance of success.

THE DISPOSAL OF THE DEAD.

STATISTICS which have been obtained through the courtesy of certain municipalities in England and Wales give striking information concerning the cemetery undertakings of the country. The figures have been furnished to the Cremation Society of England, and form the text of a valuable little book which has been published this week.[2] The Cremation Society addressed 198 municipal and burial authorities, of which no less than 166 replied to a questionaire in which the following information was required: the name of the cemetery or cemeteries under the municipal authority, the date of establishment, the area of land occupied or reserved, the capital expenditure on the undertakings, and the total interments up to the end of March, 1926. Further details asked for included the average income and expenditure of the three years ending the same date, and the number of interments per annum; from these figures the average deficiency, if any, for the three years in question could be obtained, as well as the average cost and loss per interment throughout the period. Information was also sought as to the estimated life of any cemetery or cemeteries now in use, and as to any authorised or contemplated expenditure on additional cemetery undertakings. All who have ever sent out a questionaire desiring detailed information will recognise that to receive 166 categorical responses in reply to under 200 requests is an unusual event: in this case it has no doubt been determined by the fact that the undertakings in question show an aggregate public loss in money, evidencing thus a position for which the municipalities themselves may welcome publicity, as they would welcome any practical measures of relief.

The returns have now been examined, checked, and tabulated by Mr. A. E. PIGGOTT, accountant and auditor of Manchester, and they form the most complete information of the kind which has been presented to the public, who have hitherto had to rely upon such references as could be discovered in the Municipal Year Books, the London County Council statistics, and the Ministry of Health statistics. The figures relate to 305 cemeteries owned and managed by local authorities, acting as burial authorities in their respective areas. The returns of the 166 municipalities have a reference to a total population of over 17,500,000, and the cemeteries occupy 8400 acres of land. An exact summary of the returns shows the following results:—

Capital expenditure on undertakings ..		£5,449,472
Total number of interments to March 31st, 1926		10,784,989
Expenditure per annum	(average of three years)	£800,405
Income ,,		£638,272
Deficiency ,,		£162,133
Number of interments per annum ..		173,073
Average loss per interment		£0 18 9
Average cost ,, ...		£4 12 6

The perusal of the returns, in which about one-half of the total population of England and Wales is represented, prove our methods of burial to be seriously extravagant, while the annual loss indicated may be increased, though it can hardly be diminished. A closer analysis of the figures points to an average gain of 11*s.* 5*d.* per interment in the case of 28 authorities only, while in the remaining 138 cases the average loss is £1 6*s.* There may be room here for economy, and the idea gains support from the considerable variation in the loss per interment in the different centres, which is heavier in the thickly-populated manufacturing towns. The explanation may well be that in some instances the expenses incurred have been on a pre-war basis, while in others they have been subjected to a post-war increase. But even if economy is possible in some, and possibly in many, areas, the fact will still remain that the land, whose present occupation entails these expenses in employment and upkeep is sterile, that this sterility occurs in the very places where the areas are most required for housing purposes, and that much land will have to be acquired annually for this unremunerative use. On all sides we can see chances of greater expense to the public, and on no side can relief be clearly expected.

It is nearly 25 years since the Home Office made its first regulations for England and Wales, subse-

[1] THE LANCET, Jan. 7th, p. 24.

[2] Municipal Cemetery Undertakings. Statistics furnished by the municipalities in England and Wales giving the population, number, and area of cemeteries under their control, together with the capital expenditure, ordinary expenditure, and income to March 31st, 1926. George A. Noble, 52, New Cavendish-st., London, W.; A. E. Piggott, 56, Mosley-st., Manchester. 2*s.*, post free.

quently replaced by those of 1920. It seems strange that similar regulations for Scotland are only now appearing. It has been calculated that, with a death-rate of 500,000 per annum, an area of 500 acres must be set aside yearly if earth burial is the method of disposing of the dead. Such a figure indicates to burial authorities that cremation has economic, as well as hygienic, advantages, yet cremation is but slowly overcoming the naturally conservative feelings of the community. As THE LANCET has remarked before, the only serious argument against the burning of the dead is the supposed danger that it may destroy the evidence of foul play. We find that danger slight. Before the Cremation Act was passed in 1902 cases were known in which persons had resorted to burning as a means of preventing an inquest. Since the Cremation Act has been passed and the burning of bodies has been meticulously regulated, it has never been suggested that cremation has been used for the concealment of crime. Murderers like CRIPPEN and ARMSTRONG, whose guilt was established by evidence from the bodies of their victims, might have saved their necks if the bodies had been burnt and exhumation thus made impossible; but they knew better than to run the risk of the medical supervision and examination which the Act enjoins.

In 1926, when Parliament wisely tightened up our system of death certification in the interests of public safety, it was the danger of concealing crime by earth burial rather than by cremation which required attention. The Cremation Regulations for England were made more stringent last year, and it is hard to see what more effective safeguards against foul play could be devised.[3] To summarise them once more, cremation can take place only at a recognised crematorium. Except where an inquest has been held and a coroner's certificate given, no cremation is allowed until the death of the deceased has been duly registered or a certificate has been given in pursuance of Section 2 (2) of the Act of 1926, that the death of the deceased is not required by law to be registered in England. Cremation cannot take place without the following formalities: First, there must be an application on Form A, with statutory declaration by an executor or by the nearest surviving relative; if anyone else makes the application he must show good reason why he does so, and why the executor or nearest relative does not. Then there must be a certificate on Form B, by the registered medical practitioner who attended the deceased in his last illness and who can certify definitely as to the cause of death, and a confirmatory certificate on Form C by another medical practitioner possessing specially prescribed qualifications. Forms B and C are not dispensed with unless there has been either an inquest or a special post-mortem examination by an expert pathologist. The statutory functions of the medical referee are particularly important. He must refuse to permit cremation unless satisfied that the fact and cause of death have been definitely ascertained; "and, in particular, if the cause of death assigned in the medical certificate be such as, regard being had to all the circumstances, might be due to poison, to violence, to any illegal operation, or to privation or neglect, he shall require a post-mortem examination to be held, and, if that fails to reveal the cause of death, shall decline to allow the cremation unless an inquest be held and a certificate given by the coroner in Form E." If it appears that death was due to poison or the other above-mentioned causes, "or if there is any suspicious circumstance whatsoever," the medical referee must decline to allow the cremation unless an inquest is held. Finally, he is not obliged to state any reason if he disallows cremation. It is hard to imagine more stringent regulations. In the working of them the country has placed remarkable confidence in the medical profession, and it is for that profession to ensure their successful operation and to remove any trace of popular misapprehension.

[3] See Conduct of Practice, p. 142 et seq.

Annotations.

"Ne quid nimis."

HEALTH OF THE NAVY IN 1925.

THE latest annual report[1] of the health of the Navy deals with the year 1925. It appears nine months after its predecessor.[2] Its figures show fewer sick, fewer deaths, and fewer sick daily, though more invaliding. Venereal disease is reduced, but tuberculosis has increased, especially at the higher ages. In 1925 the average number of men in the "total force" was 89,950, a slight increase. In addition there were also 4060 marines at headquarters, additional to the "total force" mentioned. This group of marines probably contains older men; they have numerous small injuries, and more invalids from heart disease. They are remarkably free from venereal disease, reporting no new case of syphilitic infection and a total incidence of only 19 per 1000. The following comparative review shows the figures of the previous year in parentheses. The decimals are rates per 1000. The total cases amounted to 464·8 (486·2), of which wounds in action were 0·03 (0·04) and other injuries 87·4 (90·0); the cases of venereal disease were 71·7 (81·8), and of all other diseases 305·6 (314·0). There were 254 (271) deaths, which gave a mortality of 2·82 (3·1). The chief causes of death were: effects of suffocation, 73 (69 in the loss of Submarine M.1); from tuberculosis, 37 (24); from accidents, 28; pneumonia, 14 (13); heart diseases, 9 (6); septic infection, 8 (4); disease of intestines, 7 (21); malignant disease, 7 (9); and enteric fever, 3 (10). The chief causes of the 1412 (1272) invalidings, 15·7 (14·5) per 1000, were: diseases of the eye, mostly errors of refraction, 256 (161); tuberculosis, 224 (159); nervous diseases, 176 (191); diseases of the ear, 144 (108); circulatory system diseases, 99 (80); diseases of the digestive system, 80 (57); venereal disease, 77 (239); including gonorrhœa, 63 (206); and injuries, 58 (60). The death-rate from disease was 1·36 (1·78), the lowest hitherto recorded. Vaccinations and revaccinations, 21,558 (15,868), are noted; there were 2 (2) cases of small-pox. Of enteric fever there were 40 (85) cases with 3 (10) deaths. A small group of 17 or 18 cases (no death) occurred in *Emperor of India* in the Mediterranean, ascribed to "infected food, probably supplied from the canteen"; the cases were all mild, which is thought to be due to the recent preventive inoculation of all the patients (within 5–9 months). The figures of tuberculosis were unfavourable last year, and this year there is a considerable increase: cases, 2·76 (2·2); invalided, 2·49 (1·8); deaths, 0·4 (0·27). From the table on pp. 16–17 we gather that the increase in invaliding is chiefly at ages over 25, and in men of over five years' service, rather late for the development of tuberculosis that was present but latent at entry. Do these cases occur more in large or small ships? No explanation of the increase is offered in the report. The heaviest incidence seems still to be on telegraphists, 12 (11). Non-pulmonary cases are this year for the first time separated from the others, and seem to prevail more at the earlier ages. Pneumonia, 221 (182); deaths, 14 (13), has slightly increased, but pleurisy, 140 (160), is less, and there is less malaria, 258 (338), and less sandfly fever, 65 (79), though more dengue, 43 (18). The incidence of venereal disease is less, 71·7 (81·8); China manifests its old baneful pre-eminence with 211·3 (248·4) cases, new cases 168·0; marine headquarters have an incidence of 19·19. There is an increase in cases of gastric, 71 (33), and duodenal, 52 (47), ulcers. There were no cases of scurvy reported this year, but 3 (2) of beri-beri. Scabies is a little increased, 11·1 (9·56); each case averages 5·71 days

[1] Statistical Report of the Health of the Navy for 1925. H.M. Stationery Office. Pp. 139. 4s. 6d.

[2] THE LANCET, 1927, i., 1045.

under treatment. The account of the training ships is meagre; they seem to have had 5 cases of tubercle and some 35 of pneumonia, but there is no account at all of the health of the cadets at Dartmouth.

ANEURYSMAL DILATATION OF THE LEFT AURICLE.

IN chronic rheumatic carditis, especially when mitral stenosis is the main lesion, the left auricle undergoes a certain amount of dilatation and hypertrophy. The extent of this dilatation is, as a rule, surprisingly small in proportion to the work which has to be done. In rare cases, however, the auricle becomes extremely dilated, and at autopsy its capacity is sometimes found to be nearly 2 litres. The reason why this excessive or aneurysmal dilatation occurs in some cases and not in others gives rise to considerable speculation, and is discussed in detail in the current number of the *Quarterly Journal of Medicine* by Dr. J. Crighton Bramwell and Dr. J. B. Duguid, who report two cases which came under their notice and review 18 others collected from the literature. They found that the associated adhesive pericarditis and lesions of the mitral valve varied so much that neither could be regarded as the primary cause of the extreme dilatation of the left auricle. The common lesion found was a localised ischæmic fibrosis of the auricular wall, and this, it is suggested, was due to embolic plugging of some abnormally situated auricular branches of the coronary artery. In still rarer cases weakening of the auricular wall is due to extension of disease from some neighbouring organ. The dilatation takes place in an unusual direction—the "horizontal dilatation" of some writers. In most of the cases the dilated left auricle was found to have extended under the right auricle and the superior vena cava to form the right border of the heart, and in an extreme case such extension caused collapse of the lower lobe of the right lung. From this it might be deduced that the abnormal distribution of the auricular branches of the coronary artery affects mainly the right side of the left auricle, and that the axis of the intra-auricular pressure is inclined towards the right. It was often noticed that the exercise-tolerance remained good for many years because, as Dr. Bramwell and Dr. Duguid point out, the brunt of the lesion falls on the auricle, whilst the ventricle remains healthy and is able to hypertrophy and maintain the circulation.

THE ACTION OF LIGHT ON THE EYE.

SOME weeks ago we gave a brief account [1] of the work of E. D. Adrian and Rachel Matthews on the discharge of impulses of the optic nerve of the conger eel when the eye is exposed to light. These investigators have continued their researches, and in a further paper [2] describe more particularly the initial stages of the process and the effect of flashes of light of short duration—i.e., they deal mainly with the processes involved in the excitation of the retinal elements and but little with the subsequent nervous changes. The methods employed were much the same as those used in the previous work. Special attention was given to determining the reaction time—the period between the beginning of the exposures to light and the beginning of the response in the retina or nerve—and to the effect of intensity and duration of the flash of light on the nerve reaction time. It was found that for a given intensity of light, flashes which exceed a certain critical duration all give the same reaction time and a discharge of the same maximal impulse-frequency in the optic nerve. With shorter durations the reaction time is longer and the impulse-frequency is smaller. Using flashes somewhat shorter than the critical duration, it was found that a definite quantity of light (intensity × duration) over a given area always produces a definite reaction time and a response of definite impulse-frequency, whatever the intensity of the light. These results hold good not only for changes in the intensity and duration of the flash, but also for changes in the area illuminated. A definite quantity of light (intensity × duration × area) produces the same reaction time, though the retinal area illuminated varies from 0·08 to 0·9 mm. diameter. The processes leading to excitation may be divided into a primary change, coinciding with the flash and forming a product proportional to the quantity of light received, and a secondary change outlasting the flash and leading ultimately to the excitation of the nervous structures. The rate of the secondary change is a linear function of the amount of "light product" or "light effect" found in the primary change. The relation between area and intensity must mean that the total effect of the light is transmitted to some region whose extent is independent of the area illuminated. The effect might be diffused widely over the retina or concentrated on a small number of nervous paths which have an overlapping distribution on the retinal surface. In either case, the transmission of the light effect must take place rapidly as part of the primary change, and the secondary change must occur in the region to which the light effect is transmitted.

We understand that Dr. Adrian will summarise his important observations in a book, entitled "The Basis of Sensation: the Action of the Sense-Organs," [3] which is now in the press.

LIFE INSURANCE IN THE TROPICS.

THE interest of life insurance in the tropics to medical men lies chiefly in its property as a definite quantitative assessment of the extra risks to the life and health of a person who lives and works under climatic conditions to which he is racially unadapted. Apart from the especial responsibility of those who examine candidates for insurance, the subject is vital to all medical men practising in hot countries. The peculiar position of Britain as the administrator of large areas of the tropics gives it perennial importance, but it has been raised rather more acutely of recent years by the "white Australia" policy. Considering the money and lives involved, the certain knowledge which exists about these extra risks is surprisingly scanty, and the consciousness of this deficiency provoked an interesting discussion at a meeting of the Section of Tropical Diseases of the Royal Society of Medicine on Feb. 2nd. As Dr. J. F. C. Haslam pointed out in his opening paper, the health administrators of the Commonwealth are claiming that the increased risks are due solely to tropical disease, which in the absence of a native population is practically unknown in Northern Australia, and that a hot climate of itself is no menace to health. The difficulty is to get evidence. Dr. Haslam quoted Sundstroem, whose material was too small to give force to his results, and read part of a letter recently published by Sir James Barrett, [4] who considers that the matter has been settled by several generations of successful colonists. Sir Leonard Rogers, in the subsequent discussion, produced post-mortem figures showing that one-third of the mortality in India is due to tropical disease. Even if the Australian authorities are right, however, the variation between tropical countries is so great that their conclusion would be of little help elsewhere. Moreover, individuals and races vary tremendously, and southern Europeans may be expected to tolerate conditions which northerners might find impossible, in spite of the vehement assertions of Cilento to the contrary. A perusal of the very able Review of Literature on the Physiological Effects of Abnormal Temperatures and Humidities, published by the U.S.A. Public Health Department last year, will not, as Dr. Haslam

[1] THE LANCET, 1927, ii., 1247.
[2] Journal of Physiology, 1927, lxiv., 279.
[3] To be published shortly by Messrs. Christophers, 22, Berners-street, London, W.1.
[4] Brit. Med. Jour., 1927, ii., 1244.

asserted, by any means convince a person of open mind that high temperatures have no ill-effect. Moreover, it is a matter of common consent that white women suffer more in the tropics than white men, and industrial experiments have shown that the adverse factors are actually the heat and humidity.

It is not, of course, true that insurance premiums are an exact measure of health risks, for their assessment depends to a large extent on the business policy of the particular company. The extraordinary variation between the rates for tropical insurance quoted by different concerns is, however, largely due to the failure of their medical advisers to provide them with adequate statistics. Dr. Haslam produced some figures supplied him by different companies for extra premium on a £1000 policy, payable after 20 years' residence in various parts of the tropics. The quotations for America varied between £25 and £150, those for East Africa between £20 and £180, and those for West Africa between £45 and £375. He stated, however, that fresh knowledge of the variations between different parts of the same colony is being used to modify the rates charged, and urged a much fuller study of the factors affecting health all over the tropics. From the actuarial point of view, a paper contributed by Mr. L. E. Raynes, of the Institute of Actuaries, corroborated the strictures passed by Dr. Haslam. The insurance expert uses the mortality table as his instrument, and this, as he reminded the audience, is valueless unless it includes a distribution of both the population and the deaths according to age. Offices have come to rely upon their own very limited experience of tropical mortality, and since much of this is necessarily spread over a great number of years, it cannot take account of the amelioration of conditions which has modified the actual mortality figures of most colonies during recent times. The results of Mr. Raynes's recent personal research provide evidence both for the importance of climate and for that of the presence of disease. He finds, for instance, that mortality is definitely lower in the hot dry plains than in the moist equatorial swamps, but also that the health and self-control of the Northern European, and his insistence on public hygiene, have a definite effect upon the death-rate. Moreover, he detects what may be a psychological factor in the returns of Northern Nigeria, where farmers live long but lonely pioneers fare badly. Lastly, he attaches importance to the disputed factor of acclimatisation. The general death-rate in the first 18 months of tropical residence is, he says, 1·405 per annum, but between 1½ and 4½ years it falls to 0·881 per annum, and some offices recognise this fact by lowering their rates after the first few years. This matter of acclimatisation was one upon which a good many speakers at this meeting held strong views. Dr. Andrew Balfour, the president, agreed with Cuvier that the nervous system was "at the bottom of the whole animal," and was what really got acclimatised. Dr. H. S. Stannus complained that the conditions in some colonies were now so favourable that men were protected from ever getting acclimatised. Dr. J. B. Christopherson thought that the blood was as important a factor as the nervous system, both in acclimatisation and in the ravages of climate. It was this speaker who raised a point which deserves consideration by every resident in the tropics: tropical conditions are hostile to health, but not to longevity; therefore the best form of insurance is the endowment policy. That this suits the insurance company equally well was admitted by Mr. R. E. Underwood, who likened it to a bet laid both ways. From the company's point of view, he said, it is a great advantage to get rid of a man before his time comes to die. Some companies offer a double endowment at ordinary rates to men living under certain types of mortality risks. Other important factors brought out in the discussion were occupation and personal habits. It obviously makes a great difference, as Mr. Underwood pointed out, whether a man is going lion-hunting or proposes to manage a bank, and at least one concern looks at the occupation more closely than at the man. Personal habits, especially indulgence in alcohol, have much improved in recent years, but the question of how a particular candidate is likely to shape in this respect is still, according to Dr. Graham Forbes, one of the unknown factors with which insurance companies have to contend. The question is beset with innumerable difficulties, and is only to be solved, as Dr. Haslam said, by an enormous amount of patient work in all parts, not only of the tropics but of countries with similar climatic conditions, and in different districts of the same country. One factor in the statistician's favour is that the men who go out to these countries as servants of the Government or large trading corporations are usually fairly sound to start with. On the vexed heat and humidity question, Dr. Haslam quoted Dr. Leonard Hill's dictum that the important thing was the rate of loss of heat. It is possible that extended work with the kata-thermometer may modify quite a number of current ideas.

THE YOUNG FILM-ACTOR.

REGULATIONS to protect juvenile cinema actors are recommended on the ground that lazy or ambitious parents, fired by the rumour of fabulous incomes, are apt to push their children into the profession without regard for health and education. The conditions under which these children work in parts of America has been impressively described by Miss Minor, of Toronto,[1] who speaks of long hours spent in rain or snow; of excessive fatigue due to long intervals between the filmings, during which there is no provision for rest or refreshment, of the effect of intense light on immature eyes, of the results of occupying childhood with simulated emotions and unreal personalities, and the methods in use to procure laughter or tears at the right moment from tiny children. In some countries there is still no legislation to prevent these abuses, and in others the laws are rudimentary. Germany, California, and New York State, says Prof. G. Ichok in a recent article[2] have special regulations governing employment, and these are, of course, the countries where the film industry is most flourishing. Austrian and Italian law forbids the use of children altogether, except for artistic or scientific films. In Berlin no child less than 3 years old may "act" for the cinema; but elsewhere no minimal age is enacted. Permission is required for children under 14 in Austria and Germany, under 15 in Italy, and under 16 in California and New York. In Germany the children can only be employed for six hours a day, and no permit is granted unless a guarantee is given that the work will not affect the child's health. The same guarantee is required in Italy. In California the maximal working day is eight hours, four of which must be occupied in school instruction, which is provided in special classes near the studio. In Germany the children must continue their attendance at an ordinary school and permits are refused if there is reason to think that the scenes in which the child is to appear are likely to have a bad moral effect or over-excite him. In Berlin, as in California, a parent or member of the family must accompany the child, and between filmings he must be under qualified guardianship. In Italy the authorities require the written consent of a parent or guardian and must be satisfied that the child will work in a good moral atmosphere. Thus in many countries, Prof. Ichok shows, the entry of children into the cinema world is safeguarded, but once in it they are left more or less to their fate, except in Germany, where the authorities demand precise information as to the scenes in which the children appear, the way in which they are called to their work, and the clothes they wear therein. Berlin also prescribes a maximal period of ten minutes for light and a special lamp system.

[1] Revue Internationale du Travail, 1927, xv., 264.
[2] Revue Internationale de l'Enfant, 1927, iv., 755

Our own country differs in its methods. Although the theatre and similar institutions are covered by laws regulating the employment of children, the film industry is not included. Local authorities, however, have the right, under the Education Act of 1921, to forbid or to regulate the employment of children in any industry. The general laws governing the work of children ensure that no child under 12 shall work save for his or her parents, and that no child under 14 may work before 6 in the morning, after 8 in the evening, or more than two hours on a Sunday. In practice, Prof. Ichok thinks, the results are satisfactory, as all local authorities have exercised the powers accorded to them, so that adequate restraint is exercised without precise legislation such as is found in America.

POST-OPERATIVE PNEUMONIA.

THE term "post-operative pneumonia" is loosely applied to conditions ranging from mild bronchitis to severe broncho-pneumonia and massive collapse of the lung. Even the dividing line that separates it from infarction is far from clear, for some authorities hold that pulmonary sepsis following operation is often embolic in origin.

In a recent review [1] Dr. Quénu and Dr. Oberlin describe the main clinical types of post-operative complications in the thorax. The commonest is benign; after an interval of from 24 hours to five days there is a sudden rise of temperature, which soon falls again by lysis. In this type the physical signs are usually an area of dullness, with tubular breathing at the base of the lungs; the sputum is mucopurulent and rarely tinged with blood, and the organism is often a pneumococcus of type IV. Recovery is the rule, but worse symptoms may supervene. Alternatively the graver forms of infection may first manifest themselves by fever on the third or fourth day, with signs of broncho-pneumonia, and expectoration which is often fœtid. The course taken by the disease is variable and prognosis must be governed more by other factors—hæmorrhage, infection, cachexia, age—than by physical signs. Massive collapse of large areas of the lung has been described, especially after operations on the upper abdomen. Here again the symptoms and signs are very variable and depend on the amount of collapse and the degree of obstruction of the bronchi, the sign of most diagnostic value being displacement of the apex-beat towards the affected side. Unless the collapse is gross the outlook should be favourable.

Whilst mental and physical depression are important predisposing causes of post-operative pneumonia, the liability to contract it is also increased by the presence of infection in the nose, mouth, larynx, or bronchi, or by previous damage to the lungs by pneumonia or tuberculosis. Exposure to cold is another factor in causation, and the incidence is said to be greater during the winter months. Irritation and cooling by the anæsthetic has also been blamed on the ground that ether chills the alveolar air, irritates the bronchial tubes and alveolar epithelium, and causes a profuse secretion of mucus which forms an ideal culture-medium for pathogenic organisms inhaled from the mouth and upper air passages. By administration of warmed ether by the intratracheal method, it is claimed that these disadvantages can be lessened, but Dr. Quénu and Dr. Oberlin strongly recommend that this anæsthetic should not be given by the closed method in high concentration as the result is often hypersecretion of mucus. Chloroform, although less irritant and less chilling, is more depressing to the patient, besides carrying the risk of sudden heart failure, and therefore has no advantage over ether even from the point of view of post-operative infection of the lungs. Probably the rôle of the general anæsthetic as a predisposing factor is considerably exaggerated, for pulmonary complications are common after operations under local anæsthesia. What may be most important is the fall in blood pressure which usually follows a surgical operation, together with deficiency in aeration of the blood. This deficiency is especially noticeable after operations on the upper abdomen which make respiratory movements difficult, owing to pain and bandaging of the lower ribs. Distension of the stomach and intestines with gas and prolonged lying on the back cause further limitation and encourage retention of secretions in the lungs and bronchi. Whatever anæsthetic is used the most important factor determining post-operative pulmonary complications is the site of the operation. Upper abdominal operations are the common precursors and reflex inhibition of the diaphragm the immediate cause of the trouble.

[1] La "pneumonie" post-opératoire. By Jean Quénu and Serge Oberlin. Archives Médico-Chirurgicales de l'appareil Respiratoire, 1927, ii., 138.

PHYSIOLOGY IN POLITICS.

A VOLUME, entitled "Britain's Industrial Future," [1] has just been issued under the authority of a number of highly competent men. The political leanings and claims of this report are obvious, but the stimulus given to thought and action by the comprehensive survey it presents must not be ignored by the medical profession for this reason. Rather the reverse; for when the laymen pay lip service in such maxims as "A nation's wealth is that nation's health," the truth obtains confirmation from medical work. Unrest and deep-seated discontent are expressions in the body politic, as in the individual, of irritation and underlying pathological trouble. Nevertheless, if anyone is too riddled with disease, like a race ridden by malaria, he has not the energy to express discontent—that divine spark of convalescence. History has portrayed this spark breaking forth ever and again into flame as the political ill-health of mediæval Europe culminated in the feverish forms of revolution; the industrial strikes, which are symptomatic of modern unrest are similarly signs of a sickness among nations who are now convalescing. The different pathological combinations of governance and public health, which spell either revolution, or hardly won progress, or steady advance towards that full and free life which eager hearts expect, have never been determined. But every nation is said to possess the government it deserves; an unhealthy people can get little value from what, for a vigorous race, would prove a stimulating constitution, while a strong stock will find an apparently oppressive state barely a burden to be lightly tossed aside.

Such are the things which add significance to the analysis given early in this report of the present state of British national life and industry. The truth is admitted that the wealth of the country is at present ill-distributed; no word is added that the distribution of the nation's health is at least as diverse—a truth borne testimony to by the Registrar-General's occupational statistics, noticed in our columns last week. So long as the distribution of health is ill-adjusted, so long will the distribution of wealth be ill-adjusted, no matter what draught of reorganisation be administered to the body politic. Minimum wage schemes and family allowances must fail, so long as they are based on the "capacity of industry to pay," rather than on the physiological necessities of life; and we are happy to believe that those who have the conduct of our national business are now aware of all this. Certain necessities are fundamental, not merely to health and contentment, but to life itself. This was revealed in the war dramatically, but the lessons then learned remain pertinent to-day. We find in these pages that two trustworthy authorities have stated a coal-miner's daily need for food-energy to carry on his work at widely different figures. There this important question is left undecided, while from every side panaceas are propounded to cure the poor coal trade patient on the basis of what he can afford to pay. What, however, must the miner eat to enable

[1] Britain's Industrial Future. Being the Report of the Liberal Industrial Inquiry. Ernest Benn, Ltd. Pp. 503. 2s. 6d.

him to do so many foot-pounds of work underground? Many political economists fail to appreciate, or argue as if there were such failure, that calculations must give way before the laws of life, whereas they should be founded upon those laws. Dublin, the American medical statistician, has suggested forcibly that the real value of human life at any time amounts to five times that of property, while healthy life is of more value than unhealthy life. Public health has so greatly improved as to be deserving of an improved governance to match. Whether adoption of the comprehensive programme advocated in this report—and the programme has the merit of boldness in some fields, even though so neglectful of certain fundamentals—would meet the need, we do not presume to discuss. One advantage it possesses in strongly advocating development of the homeland, the place where the people live, by extended road construction, by more garden cities, by slum clearance on a large scale, by developing docks, harbours, canals, and electrical supply. Health, like wages, must be earned by work, and, in so far as this development would find work where to-day there exists unemployment, it would further improve the nation's health. The means to this end are set out well in this report which is long, but well written; it deals in sequence with the condition of industry, and the organisation of business, with industrial relations, national development, and finance; finally come 36 closely printed pages of summary of conclusions. For us the interest lies in the contribution made to furthering the economics of health. Health is largely a product of environment and food, and by health is meant both physical and mental vigour. Both environment and food-supply in the homeland can be improved. By the time England has been made a land fit for heroes to live in, a heroic race will be found inhabiting it, and indeed to have made the land fit for their habitation. Meanwhile it is—

> That unto him who works, and feels he works,
> This same grand year is ever at the doors.

CONVALESCENCE.

EVERYONE with experience of hospital practice will agree that, owing to the pressure of a long waiting-list, many patients must be discharged in an only partially cured condition. In England a fortunate minority do indeed obtain a few weeks at one of the convalescent homes attached to the larger hospitals, but of necessity the majority must return to their own homes, which, as a rule, cannot provide a suitable environment for convalescence. Some of these patients continue to attend as out-patients for tonics or dressings, but many take their final leave of the hospital still feeling far from strong and receive little or no further guidance and encouragement to help to restore sufficient vigour and self-confidence for a return to full work. In a new book on "Convalescence, Historical and Practical,"[1] Dr. John Bryant records the efforts that have been made in the past by different countries to remedy this defect and to prevent this class of patient drifting to chronic invalidism, a prey to charlatans, and a burden to the rates. London took the lead with the Metropolitan Convalescent Institution established in 1844, and was followed by Paris in 1857, when Napoleon III. decreed the foundation of special convalescent hospitals at Vincennes and Vesinet. America was slow to follow this example, and it was not till 1915 that the Burke Relief Foundation was established for New York and equipped with every facility for occupational therapy. Armed with a keen interest and wide experience of military and civilian practice in this type of work, Dr. Bryant writes with authority and a wealth of detail. Struck by the scantiness of the literature on the subject, he insists that the profession is absorbed in the laboratory viewpoint of medicine and in dealing with acute cases, and that it has neglected the care of the convalescent. Patients are left "half cured." Convalescence is as much a mental as a physical condition, and occupational therapy combined with prescribed graduated exercise is of as much importance as good food and country air. Arguments on the economic side are no less convincing. Convalescent homes are far less costly than hospitals to construct, and the cost of maintaining a patient in them is estimated at one-third of the cost of a hospital case. Again, with adequate convalescent accommodation to fall back on, the average stay in hospital can be shortened and expensive hospital extensions may be avoided by a more rapid turnover of patients. Finally, the rates are relieved of the burden of a large number of chronic invalids. The book consists of a series of articles by Dr. Bryant, revised and incorporated in a single volume. This construction leads to lack of continuity of argument and some repetition, but the work is of real value in pointing the remedy of a serious defect in our present hospital and public health systems. The chapters describing the Burke Relief Foundation and the occupational therapy employed in the U.S. military convalescent camps during the war are of particular interest. They show what can be done given sufficient resources and enthusiasm, and should be read by all who are interested in the future of our hospital and public health services.

[1] Convalescence, Historical and Practical. By John Bryant, M.D. New York: The Sturgis Fund of the Burke Foundation. 1927. Pp. 269.

THE CAUSES OF INTRA-UTERINE DEATH.

THE Medical Research Council published in 1926 a clinical and pathological study, by Dr. Eardley Holland and Dr. Janet Lane-Claypon,[1] of 1673 dead births and neonatal deaths. This summarised the combined investigations of many workers at different centres throughout the country. In a further report just issued[2] Mr. A. C. Palmer publishes a detailed account of one of these investigations, dealing with 144 cases of fœtal death observed at the London Hospital; 141 of the patients were Whitechapel women delivered in their own homes by students or nurses from the hospital; three were private patients of members of the staff. A complete necropsy, including weights and measurements, was performed on all the infants, and the placenta, when obtained, was weighed, measured, and examined macroscopically and microscopically. Most of the sections were prepared according to Levaditi's method and investigated for syphilis; other specimens were stained with Ehrlich's hæmatoxylin and eosin, with Weigert's iron hæmatoxylin and van Gieson's mixture or with Weigert's fuchselin and lithium carmine. Others were examined fresh on dark-ground illumination. Eardley Holland's first investigation, published in 1922, showed that about 20 per cent. of stillborn fœtuses are macerated. Of this series 39, or 27 per cent., were macerated and 35·9 per cent. of these were proved to be syphilitic by the identification of the *Spironema pallidum* in their tissues. Toxæmia of pregnancy, indicated by albuminuria in the mother, probably accounted for the death of 11, 7·6 per cent. of the total or 28·2 per cent. of the macerated. The cause of death in 12 more was obscure, but maternal albuminuria could only be certainly excluded in one of these. Maternal morbus cordis and fœtal malformation each accounted for one death. Asphyxia accounted for the death of 91 out of the 99 non-macerated fœtuses, in 12 of whom intracranial hæmorrhage from excessive moulding appeared to be the fatal factor. Of the eight cases showing no asphyxia three had fœtal anasarca and the others all died from conditions, such as hydrocephalus and eclampsia, which would have caused asphyxia had the child lived long enough. Of the six infants who breathed for a short time after delivery, four had asphyxia and one had intracranial hæmorrhages.

[1] Special Report Series No. 109. London: H.M. Stationery Office. 1926. 3*s*. 6*d*.
[2] Ibid., No. 118. 1928. 3*s*.

Of all the 105 non-macerated fœtuses, 27 died as a result of maternal disease and 5 of fœtal disease or malformation. Labour accounted for the death of 73, or just under 70 per cent.; syphilis for less than 1 per cent. The placenta revealed no signs of maternal or fœtal disease in any of the 99 cases in which it was examined.

This report emphasises once more the findings of the larger series. With a few exceptions a dead baby is the result of one of three things: difficulty in labour (50 per cent. of this series), maternal disease (18·7 per cent.), or syphilis (11·3 per cent.). All these are preventable conditions, and adequate antenatal care would have removed or foreseen the threat to the child's life. It also appears that syphilis is unlikely to have caused the death of a non-macerated fœtus.

MOTOR-CAR ACCIDENTS AND HOSPITALS.

FOR some years past the pressure upon hospital beds and hospital finances caused by the rapid increase in the number of motor-car accidents has been growing in severity. The enormous annual output of motor vehicles of all kinds from the formidable trolley and hardly less formidable charabancs to the deadly motor-cycle, which must move the jealousy of Jehu in the shades, forbids the hope that the pressure has reached its peak, and we may therefore confidently expect that the difficulty will become still more acute. All over the country hospitals, large and small, are embarrassed by the necessity of admitting casualties to already overcrowded wards and by the cost of treating patients who are often so seriously injured that their tenure of beds, sorely needed for local purposes, is prolonged. Thus the annual report of the great Manchester Royal Infirmary, which has just been issued, records the admission of a daily average of 80 casualties—one every 18 minutes throughout the 24 hours. Most general hospitals can tell much the same story in proportion to their size and geographical situation. In the hope of obtaining precise information on the subject Mr. H. W. Burleigh, the chairman of the Hospitals Motor Accident Policy Association, last autumn addressed a letter to us asking for details of motor accidents treated at hospitals throughout the country. His invitation has been responded to by 183 hospitals, representing 14,169 beds—about one-third of the total of available beds—and the information he has obtained satisfies him that, irrespective of fees to medical men, the cost of motor accidents to the hospitals in the mass must be about half a million a year. That is an alarming figure, but, as we have said, the trouble does not end there. Lack of pecuniary elasticity is accompanied by inelasticity of beds, and Mr. Burleigh is informed that in many small hospitals, at the approach of the week-end, when the maiming is at its height, medical officers have to hasten the discharge of the local patients for whom the institution primarily exists, to be ready for injured motorists, mainly from a distance. To say that this is a grotesque state of things is to put the situation mildly. This part of the difficulty will not be removed by any arrangement for payment by, or on behalf of, these casualty patients, but it would at least ease the pecuniary perplexities of the hospital and help, in some measure, towards the provision of more extended accommodation. It is, therefore, hopeful news that the Eagle Star and British Dominions Insurance Company have devised a policy which, for a premium of 5s. a year, will guarantee to the hospital which treats a patient, injured by a moving road vehicle, a payment of half a guinea a day up to 30 days, together with three guineas for medical fees, or five guineas should the patient be detained for more than a week. For casualty patients treated, but not admitted, half a guinea would be paid to the hospital and a similar fee to the medical officer. The thoughtful and considerate motorist may reasonably be expected to avail himself of these facilities, especially as he may take out a policy for each seat in his car—the careful driver is often the victim of the reckless one. It is suggested with less reason that the pedestrian and the rider in omnibuses and taxi-cabs should do likewise, but it is obviously desirable that there should be as much insurance as possible. There is grim irony in the provision that half benefits only can be paid in respect of motor-cycles and sidecars, though the driver of these dangerous machines may equalise matters by taking two policies for each seat. Simultaneously with the creation of this interesting policy we learn that the Middlesbrough Motor Club has instituted an insurance scheme which, for a premium of half a crown a year secures payments to hospitals in any part of the country ranging from half a guinea for a dressing to £15 for a detention of five or six weeks. If the motor insurance companies would now recognise the indebtedness of their insurers to the hospitals the pecuniary side of the difficulty might be fairly met on large lines. That would surmount what is supposed to be the legal obstacle to voluntary hospitals levying a charge for the treatment of road casualties, and if it be the fact, as has been urged on behalf of these companies, that their premiums are too low to admit of payments to hospitals, it would merely seem that an essential element of protection is lacking. The low terms of the new policies to which we have referred suggest that a very small addition to their premiums would meet the difficulty. To safeguard a man against the injury or destruction of his car while he sponges upon hospitals and doctors for the cost of mending his body suggests a lack of appreciation of rather elementary ethics. Meanwhile it is announced that the King's Fund intends shortly to call a conference of representatives of the hospitals, the insurance companies, and the leading motorists' organisations to consider the whole subject.

Sir James Berry, consulting surgeon to the Royal Free Hospital, has retired from practice, but will remain on the Council of the Royal College of Surgeons of England and complete his term of office as President of the Royal Society of Medicine.

A SPECIAL meeting of the Charity Organisation Society will be held at 296, Vauxhall Bridge-road, S.W., on Feb. 13th, at 3.30 P.M., under the chairmanship of Lord Dawson of Penn, when Sir William Hamer, Dr. Graham Little, and Dr. Humphrey Nockolds will speak on the Voluntary Hospitals and the Public Authorities.

INDEX TO "THE LANCET," VOL. II., 1927.

THE Index and Title-page to Vol. II., 1927, which was completed with the issue of Dec. 31st, is now ready. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 1, Bedford-street, Strand, W.C. 2. Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now.

CONGRESSES IN CAIRO.—The centenary celebration of the Cairo Faculty of Medicine, combined with an international congress of Tropical Medicine and Hygiene, will be held from Dec. 15th–22nd. The centenary celebration will include sectional meetings in the different departments of the faculty, including operations and demonstrations, and the programme for the congress will include two general meetings on ankylostomiasis and bilharziasis. It is also proposed to arrange a medical exhibition of drugs and appliances. Further particulars may be had from the Secretary-General, Congress Bureau, Faculty of Medicine, Cairo.

The Journées Médicales d'Egypte will take place from Dec. 12th–23rd under the presidency of Prof. J. L. Faure. The subjects under discussion will include the diseases of both temperate and hot climates. There will also be an international exhibition of arts and science as applied to medicine, surgery, pharmacy, and sanitary hygiene. Further particulars may be had from the general secretary, 32, rue Gay-Lussac, Paris V°. At both the congresses the official languages will be French, English, Arabic, German, and Italian, and members will be granted reduced fares and facilities for travel.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCLXII.

THE TREATMENT OF PLEURISY.

THE frequency with which pleural adhesions are found during routine post-mortem examinations suggests that pleurisy is far from being an uncommon disease. Attacks of pain in the chest or shoulder are often due to pleurisy although they may not seriously affect the general health, and are considered by the patient to be the result of muscular rheumatism, growing pains, or indigestion.

In the great majority of cases pleurisy is due to the tubercle bacillus and it is better to consider the disease under two headings, non-tuberculous and tuberculous. First, however, I will discuss briefly a few general principles of treatment.

Principles of Treatment.

1. *General Treatment.*—During the acute stage when the patient is febrile he should be kept in bed in a warm but well-ventilated room. The diet should be light but must depend on the state of the patient's digestion. If the tongue is clean and the digestion good a generous diet should be given, but if the patient has nausea and cannot digest food it is best to rest the stomach and give a very light diet until the desire for food returns. The bowels should be regulated, and it is wise to give a dose of calomel at the onset of the illness.

2. *Pain* can usually be relieved by strapping the affected side. The strips of strapping should pass from the vertebral column completely round the chest to beyond the sternum. They should be applied and drawn tight when the chest is in a state of expiration, and it is important to see that they are fixed evenly on the chest. This restricts the movements of the affected side of the chest and relieves pain, but it is not necessary to strap the chest unless there is severe pain.

Where there is very little pain or only a dull ache the application of antiphlogistine or thermogene wool is quite sufficient to relieve the pain, and the feeling of warmth produced is very comforting to many patients. Aspirin or a mixture containing pyramidon and bromide will relieve the continuous aching pain of which some patients complain. If the pain is very severe a small quantity of air or oxygen should be introduced into the pleural cavity to separate the parietal and visceral layers of pleura; 200 c.cm. is usually sufficient to do this, and not only does it give immediate relief, but when the two pleural surfaces again come into contact the pain does not return, possibly because a layer of lymph forms over the inflamed surfaces. It is not therefore necessary to repeat the injection of the gas.

3. *Cough* is generally dry and useless, and if troublesome should be controlled by a linctus such as: morph. acet., gr. $\frac{1}{16}$; acid. nit. hydrocy. dil., ℥ii.; glycerini, ʒss.; aq. ad ʒi. If this fails a linctus containing heroin should be substituted.

4. *Fever.*—The temperature usually falls by lysis in a few days. If it persists one may suspect either the formation of an effusion or a spread of tuberculosis. It is unwise to try to control the temperature by drugs.

5. *Sleeplessness* may be due to pain, dyspnœa from effusion, or cough, and the treatment is to deal with the cause. If, however, the patient cannot sleep, and there is no apparent cause, omnopon, gr. $\frac{1}{3}$, given by the mouth, soneryl, grs. $1\frac{1}{2}$, or medinal, grs. 7, will usually give the patient a good night, but drugs of this sort should be discontinued as soon as possible.

Non-tuberculous Pleurisy.

Pleurisy may be due to a variety of causes. It is not uncommon in the late stages of chronic diseases such as nephritis, and it often follows malignant disease of lung or adjacent organs. It may result from the spread of local inflammations such as pericarditis or pneumonia. In cases of pneumonia due to the pneumococcus there is always some pleurisy which usually heals as the pneumonia resolves. If, however, it leads to an effusion, the fluid formed is purulent and not clear, and we are not concerned with the treatment of empyema in this article.

Streptococcal pneumonia may cause a pleural effusion which is cloudy and opaque, like milk-and-water. These cases are very acute and often fatal, but it is better to aspirate than to resect a rib and drain the effusion. If the fluid re-forms after aspiration and the temperature remains high, the pleural cavity should be washed out with normal saline or a 1 per cent. solution of methylene-blue, and left as dry as possible. At the same time oxygen should be introduced into the pleural cavity to replace the fluid removed. The quantity of oxygen necessary must depend on the size of the effusion and the amount of fluid removed, but enough should be given to leave the intrapleural pressure between 0 and −5 cm. water. Good results are often obtained by these methods even in severe cases, but aspiration alone is usually quite sufficient in the milder cases.

When pleural effusion is due to nephritis or heart failure aspiration relieves the dyspnœa, and the removal of 15 or 20 ounces, especially in cardiac cases, will often make the patient much more comfortable. When the effusion is secondary to neoplasm it should be remembered that it will soon re-form after aspiration, and that there is no need to remove any fluid except to relieve pressure symptoms. In some conditions, such as endothelioma of pleura, the fluid forms very quickly so that it may be necessary to aspirate every day or even twice a day.

Tuberculous Pleurisy.

Patients suffering from pulmonary tuberculosis always have some pleural involvement and are liable to recurrent attacks of pleurisy. But pleurisy often occurs in patients previously regarded as healthy, and in whom there has never been a suspicion of tuberculosis. If we regard such cases as due to the tubercle bacillus which has reached the pleura through the lung it follows that the patient is in grave danger of developing pulmonary tuberculosis. It has been estimated that over 40 per cent. of patients with so-called dry idiopathic pleurisy subsequently develop pulmonary tuberculosis. Of course a large number of patients with tuberculous pleurisy do not develop the disease in the lungs, but completely recover or are left with nothing more than some adherent pleura. There is, however, no doubt that the very great majority of cases of pleurisy are due to the tubercle bacillus, and treatment must therefore be directed to preventing the development of pulmonary tuberculosis as well as to curing the pleurisy. It is often said that tuberculosis of lung is one of the most curable of diseases if treated early enough. Here we have the disease in the earliest stage, and if later a definite and active lesion develops in the lung one cannot help feeling that it might have been prevented.

During the initial acute stage of pleurisy the patient should be put to bed and treated on the general lines already described; recovery is usually quick and uninterrupted.

Sometimes, however, a pleural effusion develops. The fluid is clear and straw-coloured; it contains but few cells, most of them being lymphocytes; tubercle bacilli are not found at first, but they appear in effusions which have persisted for three or four months; no other organisms are found. With the formation of fluid the pain disappears and the patient usually feels much better in himself although the temperature persists.

As soon as an effusion has been diagnosed it is safest to remove 5 c.cm. of the fluid for examination in order to make certain that it is not an empyema. If the fluid is clear and appears to be of tuberculous origin it will usually become absorbed in the course

of a week or two, and it is better to allow a natural absorption than to aspirate.

Aspiration should be performed only if the effusion is so large that it causes considerable dyspnœa or pressure symptoms, or if it is desired to convert the effusion into a pneumothorax. When more than 15 ounces of fluid are removed it is always best to replace it with air or oxygen, otherwise the sudden expansion is apt to set up an acute tuberculosis of the lung, and the rapid lowering of the intrapleural pressure may cause œdema of lung, faintness, or even sudden death. Oxygen should be given to replace the fluid if one wants the lung to expand in a day or so, but air is better if it is desired to maintain a pneumothorax. This should only be done if the lung shows signs of active tuberculosis.

In some cases where the fluid has taken a long time to absorb autoserotherapy has been performed. About 10 c.cm. of the fluid are drawn into a syringe, and the needle is removed from the pleural cavity, but before withdrawing it from the skin the fluid is injected into the subcutaneous tissues. I have seen no advantage from this procedure, but it is true that the removal of a few c.cm. of fluid for examination is often followed by the rapid absorption of the effusion.

When the patient has recovered from the attack of pleurisy or effusion it is very important to restore his general health and guard against the development of pulmonary tuberculosis. The patient has the right to be told of his danger and will have a very real grievance if he is not told, although one does not want to alarm him unduly. He should be advised to go through a course of training, living regularly, and combining periods of rest with a graduated and gradually increasing amount of exercise. This treatment can be carried out in a sanatorium better than anywhere else, and in no type of case is the value of sanatorium treatment seen to greater advantage. Some patients dread the word sanatorium, and others consider the suggestion of going there a personal insult. In most cases, however, the patient is only too willing to do anything to avoid becoming consumptive, and if it is explained that sanatorium treatment is advised not because he has consumption, but to prevent him from developing it, he will usually agree to that or at any rate to some similar course of treatment.

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Special Articles.

MEDICAL RESEARCH COUNCIL.

ANNUAL REPORT FOR 1926–27.

THE Report[1] of the Committee of the Privy Council for Medical Research for the year 1926–27 contains much interesting matter. The grant-in-aid of £135,000 provided by Parliament has been allocated as follows: for administration £9000; to the National Institute for Medical Research, Hampstead, and the farm laboratories, Mill Hill, £46,000; for research grants to scientific workers and for the Industrial Fatigue Research Board, £80,000. Additional grants have been received for particular investigations from the Dental Board of the United Kingdom, the Empire Marketing Board, the Miners' Welfare Fund, the British Empire Cancer Campaign, and the "Field" Distemper Research Council, as well as by private benefactions. The Committee point out that the facilities provided by universities and other centres of research are a valuable form of help. Sir Hugh Anderson and Prof. T. R. Elliott have taken seats on the Council in place of Sir Frederick Andrewes and Sir Cuthbert Wallace, who retire in order.

The Medical Research Council publish their thirteenth report this year. They have coöperated with the Ministry of Health, the Scottish Board of Health, the Home Office, and the departments of Scientific and Industrial Research. A Colonial Medical Research Committee has been appointed to advise the Secretary of State and the Council upon medical research in the colonies. The new machinery provided by the Committee of Civil Research is a simple, direct, and flexible method of securing discussion on problems affecting different parts of the Empire in the common light of administration, experience, and scientific knowledge. Steady progress has been made towards the linkage of the research organisations in Great Britain with the equivalent organisations in the Indian Empire and Dominions. New arrangements have been made for bringing the Council's research work into close and regular touch with that of the Colonies, Protectorates, and mandated territories. A whole-time scientific secretary has been appointed by the two departments acting together. It is hoped that the new machinery will enable every part of the total resources of the Council to find a useful place in the schemes of the new Committee. The Report points out that tropical disease can no longer be regarded as a separate department of medical research. The stage is set for intensive laboratory investigation to follow up the preliminary field work which is now completed in most directions. In the first place it is being recognised more and more that errors of nutrition produce many diseases formerly called tropical. Secondly there are many non-tropical diseases, such as tuberculosis and measles, which are as common in the tropics as in England and which could in some ways be better studied abroad than at home. With every year it becomes increasingly clear that medical science is one and indivisible and that the work should be done wherever the man best fitted for it can most easily find his opportunities for progress.

[1] H.M. Stationery Office. Cmd. 3013. 3*s*.

Work on the Heart and Circulation.

The past year began a new decade of the work of Sir Thomas Lewis and his colleagues, and a review of the researches he has made for the Council is given in the Report with the comment: "It is not an exaggeration to say that the output of valuable work from this centre in the last decade has constituted the central stream of progress made in these subjects anywhere." The work is summarised in a recent monograph, "The Blood-vessels of the Human Skin and their Responses," and the results have immediate value for clinical medicine.

Cutaneous blood-vessels subjected to various forms of stimulation, or to histamine, contract imperfectly if at all, under the stimulus of adrenalin and pituitary extract. Telangiectases react in the same way and to this their dilated state may be attributed. The intensity and distribution of emotional blushes is also affected by differences in the tone of the minute vessels. The reaction of skin to ultra-violet light resembles that effected by other forms of stimulation in that it is attributed to the release of a histamine-like substance in the skin. Evidence has been brought to show that the anaphylactic poison in a "fish-sensitive" subject acts on the vessels of the skin by liberating a histamine-like substance. Weakness of the blood-vessel wall has been shown to be an important factor in causing cutaneous hæmorrhage in various diseases. Vessels which have been exposed to injury, such as ultra-violet light or freezing, show a lowered breaking strain. The distribution of hæmorrhages in the skin is governed largely by the pressure obtaining in the corresponding minute vessels and by the local condition of the vessel wall. Drs. Wetzel and Zottermann have confirmed the opinion of previous workers that the coloration of the skin in different parts and different people is chiefly determined by the minute veins, and by size rather than by number. The differences in size are due to differences in the responses which the vessels can offer to distension. A long series of observations shows that the vascular response to injury is always independent of nerves and the flare surrounding the point of injury is brought about by axon-reflex through local sensory nerve-fibres. Vaso-dilatation has been shown to be due to the release of a histamine-like substance in the skin when a sensory nerve-fibre is cut. Sir Thomas Lewis and

Dr. H. M. Marvin suggest that herpes zoster is produced in this way, that antidromic impulses are concerned in controlling the metabolic or secretory activities of tissues supplied by them, and the trophic lesions are due to disturbances of this control.

Dr. A. N. Drury and Dr. N. W. Jones have investigated the rate of dropsy formation and described a method of measurement and the effects of different venous pressures and temperatures. Dr. R. T. Grant has published a description of the development of the coronary vessels of the heart, and has studied a case of defective pericardium, and concluded that the pericardium normally plays no part in supporting the heart wall. Dr. A. A. Osman has applied modern methods of biochemistry to the study of Bright's disease, and published results in the centenary year which give promise of adapting with more certainty of success the treatment of this disease to the particular disorder present. Dr. Osman's work, reported last year, on tests identifying those patients of scarlet fever who are likely to develop nephritis, has been confirmed upon a large scale. His method of treatment by alkalis is said to have reduced the incidence of renal complications from 5·5 per cent. to 0·6 per cent.—a very striking achievement.

Vitamins.

Dr. O. Rosenheim and Mr. T. A. Webster have succeeded in producing vitamin D by the action of ultra-violet light upon a sterol.[2] Recent work has abundantly confirmed their conclusion that ergosterol is an abundant, rapidly available, and astoundingly potent preparation of vitamin D. One ten-millionth of a gramme suffices to prevent rickets in a rat. A number of problems arising from this discovery are now being attacked. Ultra-violet radiation not only forms a vitamin from ergosterol, but destroys it when formed; effort is being made to select regions of the spectrum in which the formative outweighs the destructive action. Cholesterol from skin has been examined and found to contain the vitamin-yielding impurity. This seems to justify the assumption that the preventive and curative effects of sunlight on rickets are due to the natural production and absorption of vitamin D. We can now obtain abundant and cheap supplies of the antirachitic vitamin in a potent and isolated form, so that it is easy to examine the properties of vitamin D without the complications induced by the presence of vitamin A. So far there is no clear evidence of the chemical nature and affinities of the latter vitamin. The colour reaction introduced by Dr. Rosenheim and Prof. Drummond has been used to explore its distribution in the fats of different organs in many animals. The proportion present in some liver fats may far exceed that found in cod-liver oil. The liver oils of the salmon and halibut may be more than a hundred times as rich in vitamin A as cod-liver oil, as may also the liver fats of birds like the grouse or the goose. Dr. Rosenheim and Mr. Webster have found that the liver fats of the sheep, calf, and ox contain ten times as much vitamin A as cod-liver oil, and that the content in butter varies widely according to circumstances. Calculation has shown that the total supply of milk-fat throughout the world is inadequate for the minimal needs of the population. The crucial problem is not, therefore, the hopeless difficulty offered by the shortage of milk-fat; it is the problem of the supply of fat-soluble vitamins which, in the light of these discoveries, can now be cheerfully faced. Our national needs of vitamin A can be met by the addition to the diet of substance from liver fat, either in butter in or margarine or in other ways. It has already been found that the vitamin content of fat from imported New Zealand liver is the same as that from home-killed animals. Moreover the fats extracted from the liver are free from the unpleasant flavour of fish oils and their low melting-point greatly aids incorporation with other fatty materials. The problem of the supply of vitamin D is also now easily solved. The liver fats contain almost none of this vitamin; apparently herbivorous animals, unlike fish, do not store vitamin D in the liver. Since, however, it can be produced artificially by irradiation of ergosterol there is no need to search for natural products.

Human rickets can be very rapidly cured by a daily dose of 2 mg. and the amount needed for preservation of health is therefore extremely small. Improvements in the mode of irradiation, already foreseen, will make a practically unlimited supply available. There is no doubt that the great majority of the population are suffering from deficiency in these essential food elements, and the cost in human suffering and economic loss is incalculable but certainly vast. The Report points out the immense value to the nation of nutritional studies, affecting as they do at a thousand points the food of the population, its choice, its preparation, and its manipulation in the kitchen. A small representative Nutrition Committee which was appointed last year drew up a comprehensive and coördinated programme of work and are attempting to frame a chemico-geographical survey of the inorganic constituents of diet available in different parts of the country and their relation to the distribution of disorders in human and animal life. Another problem is the so-called "man value"; what are the factors to be rightly used in referring quantitative dietetic estimates of a safe man-power standard by due allowance for age and sex? There is reason to believe that the factors at present used undervalue the requirements of children, and that the standard for the average adult man is too high. What, again, is the biological value, if any, of food taken in excess of the actual needs of the body as judged by the energy expenditure? It is not yet scientifically known how much water a man should drink or what is the best kind of bread to eat. We cannot guess what natural relations of diet to disease or liability to disease are waiting to be revealed.

These are some of the problems which will be under consideration during the next year of research activity. The Nutrition Committee have under consideration more comprehensive schemes for surveying the dietetic needs of different sections of the population and the deficiencies in diet that can be traced to remediable accidents of soil, water-supply, or the treatment and distribution of foods.

[2] THE LANCET, 1927, i., 306; ii., 622.

THE HUNTERIAN BICENTENARY.

ON Feb. 13th the bicentenary falls of John Hunter's birth, and the occasion will be appropriately celebrated by the Royal College of Surgeons of England, the guardians of the magnificent museum, in Lincoln's Inn Fields, which bears Hunter's name and has been developed from Hunter's remarkable collection.

The Hunterian Oration will be delivered by Sir Holburt Waring at 4 P.M. on Feb. 14th, on the Progress of Surgery from Hunter's Day to Ours. The Oration will be freely illustrated. The festival dinner is arranged for 8 P.M. on the same day. On Feb. 16th there will be a reception in the College from 3 to 5 P.M., and the Thomas Vicary Lecture on the Homes of Hunter will be delivered by Dr. G. C. Peachey at 5 P.M.; a special display of Hunterian specimens has been arranged by Sir Arthur Keith, the Conservator, and interesting Hunterian relics will be shown by Mr. Plarr, the librarian of the College, during the week.

Thus from Monday, Feb. 13th, to Feb. 18th, except on the afternoon of Thursday, Feb. 16th, visitors to the Royal College of Surgeons will have an opportunity of examining an extensive display of Hunterian portraits, specimens, and relics. In the conservator's room will be shown a series of portraits representing John Hunter at succeeding times of life. His manuscripts and drawings are to be placed on exhibition. The conservator has selected specimens from the general collection to illustrate the chief of Hunter's discoveries. The University of Glasgow, the governors of St. George's Hospital, the Society of Apothecaries, and representatives of the Hunter

family have made valuable contributions to the exhibition. Specimens have been arranged to illustrate the background of Reynold's picture of Hunter—in some instances the actual specimens being shown. A valuable collection of Hunterian relics has been obtained on loan from the Wellcome Historical Medical Museum, by the courtesy of Mr. Wellcome.

Dr. Peachey, Vicary lecturer, at the request of the Council of the College, has had prepared a series of photographs, sketches, and maps to illustrate the various residences and schools occupied by the Hunter brothers in London, showing them as they were a century and a half ago and what is preserved of them to-day.

New Hunteriana.

Among the many relics of John Hunter which will be exhibited at the Royal College of Surgeons on the occasion, assuredly one of the most interesting, recently acquired, is the bureau or desk, surmounted by a bookcase, presented to the College in 1927 by Miss Margaret Hunter. This is one of three bureaux, two of which are now the property of the College, the third being in Edinburgh. Of the College desks one is the escritoire with a roll-top, which has long been a familiar object to visitors to the institution. It contains secret drawers and is erroneously supposed to have been constructed by John Hunter himself. More probably he obtained it, as he did the desk with bookcase and capacious drawers, now recently added, from his close personal friend and near neighbour, Thomas Chippendale, who also sold or gave him a sideboard, some chairs, and other articles of furniture. The desk, with bookcase attached, under discussion was probably John Hunter's principal writing-desk. Its interior is delicately fitted and suggests Sheraton workmanship, but the whole plain, though graceful effect, is Chippendale. On the writing-flap the great surgeon probably wrote, in the drawers below he kept his papers, letters, and MSS., while the shelves above may have contained part of that "valuable well-chosen select Library of Scarce Books," to quote the Christie and Manson Hunter Sale Catalogue of Feb. 1st, 1794; the possession of this library by Hunter has been disputed by those who will have it that he was an illiterate, but a sale catalogue could hardly include the non-existent. The proceeds of this Hunter sale amounted only to the sum of £1300, a sum ridiculously low even in that age, and the price paid by Everard Home for the three bureaux, according to one authority, was £15. Such fine pieces nowadays would fetch at least £100 each, but comparisons of price do not mean anything when 130 years have elapsed. To Home the value of the bargain lay in the contents of the secret drawers and the general contents—viz., all Hunter's note-books and other manuscripts. These documents are known to have been in Home's hands before the year 1800. Very leisurely he poached on their contents and then as leisurely destroyed them. In 1821 he sold William Clift, Hunter's famous disciple, a book-case with drawers, which is now in Scotland, where at one time it belonged to the late Prof. Chiene, and on the same occasion Clift may have bought from him the bureau under discussion. This at Clift's death was bought by Thomas Madden Stone, long known at the College as an ardent Hunterian, for 4 guineas, and at Stone's death it was acquired by Miss Margaret Hunter, a collateral descendant of John and William. It appears that when Clift acquired the bureaux he supposed their contents to survive, and it was not till 1823 that he was shocked by the casual announcement, made while they were driving in a post-chaise, that Home had destroyed the Hunter manuscripts, so regretted to-day.

The centenary of John Hunter's death was celebrated in 1893 when an elaborate catalogue by James Blake Bailey, the College librarian, recorded the Hunteriana collected until that date. The additions to that collection during 1893–1928 have been considerable, and include portraits, manuscripts, the Hunter Baillie volumes of documents, transcripts of lectures, and many small objects once the property of the famous John Hunter. These taken together will form a large exhibit in themselves, and will be shown in the Council Room, the Conservator's Office, and Room IV. of the Museum.

UNITED STATES OF AMERICA.

(FROM AN OCCASIONAL CORRESPONDENT.)

Small-pox and Alastrim.

A NUMBER of experiments on the immunological relationship between small-pox and alastrim have been made in the hygienic laboratory. Monkeys and rabbits were selected for the subjects. Definite cross-immunity was found between alastrim and "mild small-pox" and between alastrim and vaccine virus. The workers conclude that their results establish additional evidence of the identity of the two diseases (James P. Leake and John N. Force, Hygienic Laboratory Bulletin, No. 149, 35 cents). The same bulletin contains a second paper by the same authors describing a method for estimating the potency of small-pox vaccine. They require that a vaccine of "high potency" shall produce a confluent eruption on from 90 to 100 per cent. of the vaccinated area on the back of a rabbit in a dilution of 1 in 1000, and when further diluted to 1 in 3000 the decrease in confluence should not be over 20 per cent. Such a vaccine applied to a 2 mm. scarification in an unvaccinated individual will produce a vesicle not less than 7 mm. in diameter on the seventh day.

"Narcotic Education."

The number of drug addicts in the United States is variously estimated at from 100,000 to over a million. Some influential people who place their faith in the higher estimates organised about two years ago a body with the resounding title "International Narcotic Education Association." Although founded with a good deal of advertisement and in a perhaps unnecessarily alarmist spirit, the organisation has drawn in men of wisdom and experience from all parts of the country who have been formed into departmental committees on a businesslike basis. These committees held their first annual conference last November and the report of their deliberations, just issued,[1] contains matter of considerable interest. The Association has laid down three propositions in regard to drug addiction: "That the cause is ignorance, that the effect is misery, and that the cure is education." But then, as one of the speakers pointed out, "members of the medical profession, scientists, and chemists are among its victims. Is it fair to assume they do not know? What is it they do not know?" His own answer to the last question is that they do not recognise pain as a friendly messenger. One may doubt whether the broadcasting of this information will reduce the number of addicts. Even the experience of addiction seems insufficient education, for only the more optimistic experts expressed faith in any permanent cure.

Education, it is decided, must be supported by, as it must also support, legislation. A drastic model Bill, presented by the Committee on Law and Philosophy, was adopted with amendments to make it still more drastic; so that in its final shape a pedlar who creates addiction in a minor or employs a minor to create addiction is punishable with life imprisonment. Strong pleas that addiction should be treated as a disease rather than as a crime seem to have found expression in the draft legislation only for addicts not charged with crime. It is recognised, however, that heroin addiction results both in criminal tendencies and in an overwhelming desire to create new addicts. It was shown by Dr. J. F. Fisherman, former inspector of prisons for the Federal Government, that great cruelty results to addicts in county gaols from the ignorance of local physicians of proper methods of

[1] Report of the First Annual Conference of Committees of the World Conference on Narcotic Education and International Narcotic Education Association: 662, Southern Building, Washington, D.C. 75c.

treatment. It was also stated, on the same authority, that uncontaminated prisoners form ready victims to addiction through the overtures of confirmed addicts incarcerated with them. In spite of this the model law requires criminal addicts, as well presumably as the pedlars who serve life sentences, to be committed to a penal institution. A rather surprising provision requires that narcotic education shall be included as a "major subject" in the curricula of all public schools.

MEDICINE AND THE LAW.

A Ridiculous Penalty.

THE solicitors' profession is understood to be making progress towards the consolidation and revision of the Acts of Parliament which prescribe its government. If any similar task is undertaken for the Medical Acts, which have as long a pedigree and as tangled a purport as the Solicitors Acts, the question of increasing the penalty for posing as a medical practitioner should be considered. At the Mansion House on Jan. 27th William Faulkner was summoned before Alderman Sir George Truscott for having in December last unlawfully, wilfully, and falsely pretended to be a doctor of medicine, implying that he was a registered medical practitioner. According to the report of the proceedings in the *Star*, the prosecution stated that on defendant's door at Wardrobe Chambers was the name and description, "Dr. S. Boyd Faulkner, M.D. Lond., D.S.C.," though he had no qualifications whatever in this country, and had acknowledged to the Registrar of the General Medical Council that he was not a registered practitioner. The defendant appears to have told the bench that his was a nature-cure establishment, and that he had an electric apparatus; every one of his cases, he claimed, had derived some benefit from his treatment. As Sir George Truscott observed, that was not the question. "The full penalty," said the Alderman, "which I consider wholly inadequate, is £20; you will be fined that amount, and £10 10*s.* costs, or two months' imprisonment." Parliament should take some notice of this judicial comment on the utter inadequacy of the penalty. For a man who has no English qualifications whatever to call himself "Dr. S. Boyd Faulkner, M.D. Lond., D.S.C.," is a piece of impudent imposture fraught with possibilities of grave danger for members of the public whom the Medical Acts are designed to protect.

Professional Secrecy.

Reference was lately made in our columns to recent French discussions of the duty of professional secrecy. Article 378 of the French code was cited in order to contrast the express statutory prohibition which is part of the French law with the ambiguous position of the medical witness in the English law-courts. The discussions in France are continuing,[1] and are usefully analysing the juristical ideas on which the law is based. One idea is that of exemption; the doctor is not obliged to give evidence. This conception seems to leave him a discretionary power of giving or withholding his testimony according to the dictates of his conscience. A quite different idea is that of absolute prohibition, based on the definite interdict in Article 378. To put the matter in another way, the medical witness may be deemed to have an absolute incapacity. Among the implications of the language of the code, four inferences have been evolved. First, it is said, the doctor cannot be heard as a witness even if he consents to give evidence. Secondly, if he does give evidence, judge and jury ought not to take into account what he says. Thirdly, if they do take it into account, the superior court should annul their decision. Finally, the doctor who gives evidence in a court of law can be prosecuted under Article 378. These conclusions are only of academic concern to the medical profession in England where nothing in the nature of an express statutory prohibition has been enacted. In France they appear not to be accepted by the prominent jurists who have written upon the subject. The medical profession in France is evidently dissatisfied with the existing uncertainty; the outcome of its discussions will be awaited with interest.

[1] Bull. de l'Académie de Médecine, 1928, xcix., 76.

River Pollution and Sugar-beet Effluent.

In reports issued last year of the progress made towards purifying our rivers mention was made of the adverse effect of establishing beet-sugar factories. Proceedings have been instituted at Nottingham by the Trent Fishery Board against the Anglo-Scottish Beet Sugar Corporation, though with no conclusive result. It was stated by the prosecution on Feb. 4th that the defendants had already been fined £25; after conviction they could be fined £5 for every day that the offence continued; these and other offenders had been warned that, if the infliction of the original penalty had no effect, the Fishery Board would press for the continuous daily fine until the effluent was properly purified. Biological experiments described by Dr. H. S. Holden indicated that fresh-water shrimps died in seven minutes after being placed in a sample of the effluent from the defendants' premises, and that they lost power to swim after four minutes, Two gudgeon died in little more than half an hour. A civil engineer, giving evidence for the defence, said that every reliable method of dealing with the effluent which he had recommended to the defendants had been put in practice; there were signs of hopeful results from experiments. Mr. William Sutton, an analytical chemist of Norwich, advised delay; in his view things were getting better every year; moreover, he considered that the stream was polluted before it reached the defendants' factory. The case at present stands adjourned for a month.

It is an awkward fact that the two separate functions of the Minister of Agriculture and Fisheries clash irreconcileably in this matter; the encouragement of agriculture is the discouragement of fisheries. According to the report of the proceedings in the *Times*, there was evidence that the Trent occasionally has a run of salmon, about 500 salmon having passed up the river last autumn. The public, which is showing some enthusiasm for the "purer rivers" movement, wonders whether the existing law is inadequate or whether the administration of the law is at fault. It will await the further proceedings with interest.

Spinners' Cancer.

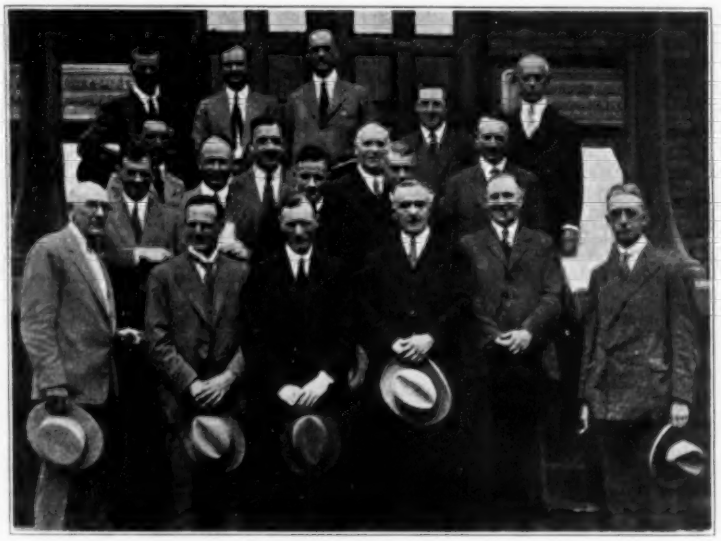
Judge Spencer Hogg, at Oldham County Court, on Jan. 26th, had before him an important case in which the question of the legal power given to medical referees under the Workmen's Compensation Act was raised. An application was made by Jane Alice Needham for compensation from the A. C. E. Mill Company, Hollinwood, on account of the death of her husband as the result of spinners' cancer. The husband, who was 65 years of age, had been a cotton spinner for 40 years, but had only been in the employ of the A. C. E. Mill from June, 1925. The respondents contended that he was employed only as an odd man, who did not come into contact with mineral oil. After a certificate had been issued by Dr. H. M. Fort, a certifying surgeon, the case was taken to Dr. Judson Bury, medical referee for industrial diseases, who dismissed the mill's appeal and certified that the man was suffering from the disease. It was stated that the man had an ulceration of the neck, and the respondents claimed that this was not due to his employment, and that the onus was on the applicant to prove that it was. The judge said that the decision of a medical referee took the matter out of his hands. If there was an ambiguity in the certificate he would have had jurisdiction; but there was not. The solicitor for the mill remarked that it left the employers in a position of having to pay compensation without the case being heard as to whether or not the disease was the result of the man's employment by the firm. The judge agreed that it really took the jurisdiction out of the hands of those who hitherto dealt with it. He granted the application for £250 compensation, but he granted a stay of execution on the usual terms.

ROYAL SOCIETY OF MEDICINE.

VISIT OF THE SURGICAL SECTION TO CANADA AND THE UNITED STATES.

THE tour organised last autumn by the Surgical Section of the Royal Society of Medicine proved such a success as to encourage similar ventures in the future. We are indebted to Mr. C. Max Page for this brief outline of the visit.

The party consisted of 25 members, seven of whom were accompanied by their wives. A group of this size is large enough to obtain a considerable reduction in railway and hotel rates without being cumbersome to manage. The travel and hotel arrangements were made throughout without a hitch by the Cunard S.S. Company and the Canadian National Railway Company, a courier being provided by the latter. Dr. Franklin Martin, Director-General of the American College of Surgeons, undertook to get in touch with the prominent surgeons in each place on the itinerary and at every centre visited the local surgeons and the hospital organisations afforded the group a great welcome. First-class programmes of operative work, and dry clinics (to use a popular Americanism) were organised. "The hospitality of our hosts," Mr. Page writes, "surpassed all expectations of a country already famous in this respect. Not only were we entertained in the clinics and at clubs, but our hosts were extraordinarily helpful and kind in providing motor-car transport and looking after our comfort in every way."



THE SURGICAL SECTION ON THEIR AMERICAN TOUR.

Photograph by Armour & Co.

The Itinerary.

The party crossed in the S.S. *Ausonia* and landed at Quebec on August 29th. Six days were spent in Canada. At Montreal Dr. A. T. Bazin and Prof. E. W. Archibald acted as hosts at the General and Royal Victoria Hospitals respectively, and at the latter the Section was fortunate in seeing a thoracoplasty performed by Dr. Archibald. In the evening the party dined at the Mount Royal Club and met Prof. Armstrong. At Toronto the group were warmly received by Dr. Clarence Starr and saw Dr. Gallie and Dr. Le Mesurier at work. An afternoon was spent at the Toronto Exhibition, and on the following evening some members played golf with Dr. Starr and Dr. Gallie, and the remainder were entertained by Dr. Bruce.

A visit was paid to Niagara before proceeding to Chicago, where, despite our arrival during a week-end which terminated in Labour Day holiday, a full clinical programme had been organised by Dr. Kreuscher, in addition to various entertainments. On the Sunday the party was conducted by Dr. Franklin Martin over the fine Murphy Memorial which forms a magnificent addition to the home of the American College of Surgeons. We also saw the new North-Western University Medical School, and visited the University Clinic, then nearing completion, in its beautiful surroundings in the University Park. At Chicago the party had its first experience of the intensive operating programmes which our American colleagues know how to stage so well. Interesting operations, in which Dr. Nelson Percy, Dr. Eisendrath, Dr. Cubbins and others took part, were witnessed at the Augustana, Wesley, and Cook County Hospitals. Dr. Franklin Martin entertained the party at Exmoor Country Club on Saturday, and on Sunday a supper party was given by Dr. Kreuscher at the South Shore Club.

After a night's journey the furthest west point of the tour in Rochester, Minn., was reached. Only two days were spent at the world-renowned Mayo Clinic, and they were very fully occupied. Both Dr. C. and Dr. W. Mayo were at home and operated and gave most interesting talks, in addition to entertaining members of the party at their homes. Operation lists, which included some most excellent work by Dr. Judd, Dr. Balfour, Dr. Adson, and Dr. Hunt, made up the surgical programme. On the pathological side the group was fortunate in being present at a weekly meeting of the staff conducted by Dr. H. E. Robertson, and also paid a short visit to the Institute of Experimental Medicine and met Dr. Mann and his coworkers. On the Tuesday night the party dined at the Rochester Country Club, and heard Dr. Mayo, Dr. Wilson, and Dr. MacCarty speak. Returning via Chicago, the party was entertained by Messrs. Armour, and a visit to their stockyard and factory proved an interesting experience. The photograph here reproduced was taken at this stage of the tour.

At Grand Rapids the programme was arranged by Dr. Ferris Smith, and was of particular interest on account of the first-class work witnessed in hospitals smaller than those so far visited. The Butterworth and St. Mary's Clinics were in structure and equipment as advanced as any that were seen in course of the trip. In the evening the party was entertained by the Kent County Medical Society. At Detroit the reception was more than hospitable under the kindly management of Dr. Kelly. Sunday was spent on a yacht trip on Lake St. Claire. The next morning was spent with Dr. MacClure at the beautiful Ford Hospital, and in the afternoon a tour of the Ford factory at Rouge Park, together with a visit to the Ford air port and trip over Detroit on a large passenger plane, made a memorable day. The party met Mr. Ford and his son, and were given an opportunity to see and try their new car. On the following day the Harper Clinic and Receiving Hospital were visited in the morning, and the Jefferson Clinic and Parke Davis Works in the afternoon. The journey to Cleve-

land was made by the night boat, and a very full day was spent with Dr. Crile at his new clinic—an operation list of 12 was completed with characteristic vigour and punctuality by 11.30 by Dr. Lower. A number of short papers by members of the staff followed a visit to the experimental department. After tea and dinner with Dr. Crile the party left for Baltimore. The party experienced a definite change of atmosphere touched with an agreeable southern flavour on their arrival in Maryland—emphasised by the fact that the thermometer rose to 97° F. during their stay. The Baltimore programme was (mercifully under the climatic conditions) confined to the Johns Hopkins Clinics. Operations by Dr. Hugh Young, Dr. Finney, Dr. Dean Lewis, and Dr. Dandy were witnessed, and Dr. Bloodgood gave a demonstration of bone tumours and discussed their diagnosis. Here the party had the pleasure of meeting the doyen of American surgery, Dr. Kelly. Dr. Hugh Young entertained the party at a country club in the evening. Some members visited Washington on the following afternoon, while others went to an outlying hospital with Dr. Bloodgood.

Philadelphia was unfortunately reached on a Saturday, but a full programme was staged. Five surgical clinics were working in the morning in different parts of the city. Most of the party visited the Jefferson Hospital and watched Dr. Chevalier Jackson and Dr. Gibbon at work. Dr. A. Ashhurst was operating at the Episcopal Hospital and Dr. Charles Frazier at the University Hospital. In the afternoon Dr. John B. Deaver carried through a long list at the Lankenau Hospital. The party was entertained at the Penn Athletic Club in the evening and at Dr. Jopson's home on Sunday.

New York was reached the following day, and in the three days at disposal choice was more than usually difficult among the wealth of clinical material available. Most of the party visited the Post-Graduate Hospital and watched Dr. Albee and Dr. Erdmann. On Thursday Dr. William Coley was visited at the Hospital for Ruptured and Crippled. The afternoon was most pleasantly spent in a yacht trip up the Hudson with Dr. George Stewart, most of the party at this stage of the tour being ready for a half-holiday. On Wednesday an interesting symposium in cancer treatment by X ray and radium was given at the Memorial Hospital and afterwards an excursion was made to the amazing new building which is to become the New Columbia Medical Centre. The visit of the party to the Rockefeller Institute where Dr. Noguchi and Dr. Eberling gave fascinating demonstrations was unfortunately cut short by the necessity of catching a train to Boston.

Boston was the last centre to be visited, and most of the party felt sorry to have a bare two days to spend in a city of such historic associations. Prof. Harvey Cushing entertained in the morning at the Peter Brent Brigham Hospital, and later the party went to the General Hospital, a pleasant old foundation with modern additions. In the evening we were entertained at Brookline Country Club. On the following day Dr. Osgood and Dr. Ladd gave us a first-class clinic in their most delightful Children's Hospital, and subsequently Dr. Lahey was seen operating at the Deaconess Hospital. An interesting diagnostic clinic by Dr. Joslin, Dr. Fordan and others concluded our medical experiences.

The Return.

The party returned to New York by train and embarked direct on the S.S. *Lancastria*, glad enough to have a rest, for the infectious enthusiasm of their American hosts had kept an active interest from the start to the finish of the journey. Mr. Page writes of the sense, shared by all the party, of having completed a memorable and inspiring experience. The whole party was strongly impressed by the high standard of surgery which is widely attained in the States, and was filled with admiration for their energy and organisation. From a surgical point of view, in the short time at disposal the able staff work made it possible for the group to see a great deal of interesting work, and to obtain an insight into various phases of American life.

The names of those taking part in the tour were as follows: F. Belben (Bournemouth), J. A. Berry (Guy's), R. B. Blair (Hull), E. J. Bradley (Stafford), A. H. Burgess (Manchester), H. B. Butler (Guildford), L. D. Callander (Doncaster), E. F. Finch (Sheffield), W. Gilbert (Port Elizabeth), W. Lennox Gordon (Cape Town), C. B. Heald (London), F. S. Heaney (Liverpool), J. J. Kearney (Cork), I. Macdonald (Huelva), P. H. Mitchiner (St. Thomas's), C. Max Page (St. Thomas's), J. Howson Ray (Manchester), Winifred Ross (Dulnain Bridge), J. J. M. Shaw (Edinburgh), E. W. Sheaf (Guildford), G. B. Stoney (Kleinfontein), M. P. Susman (London), J. H. Watson (Burnley), J. Whittingdale (Sherborne), J. B. F. Wilson (Sheffield).

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

The National Cancer Campaign (Ireland).

DURING the past few months several influential meetings have been held in provincial towns in support of the National Cancer Campaign (Ireland). Last week a successful meeting at Wexford followed meetings previously held at Nenagh and Limerick. Each meeting was addressed by members of the Central Council from Dublin, as well as by local speakers. Cordial support is being given by the medical profession in each centre as well as by the local clergy of all churches. In each town where a meeting is held a committee is organised in order to maintain interest in the movement, both by further propaganda and by collecting funds. An active branch of the campaign has been organised in Belfast where a public meeting will shortly be held.

Charge of Blackmail against a Medical Man.

Last Saturday, before the district justice at Killaloe, Dr. Henry Vincent McKeogh, medical officer of Portroe dispensary district, was charged with having "feloniously, with threats and menaces, demanded of Dr. Patrick J. Holmes the sum of £300, with intent feloniously to steal, take, and carry away the said £300." Dr. Holmes is medical officer of the Killaloe dispensary district. Evidence was given that Dr. McKeogh had threatened to complain of Dr. Holmes to the General Medical Council, had offered to hold back his complaints if Dr. Holmes was willing to "meet him half-way," had asked for a sum of £300, and had actually been paid £200. The justice found that a prima facie case had been established and he returned the accused for trial at the next Circuit Court at Ennis, bail being allowed.

MANCHESTER ROYAL INFIRMARY.—During the past three years there has been a decrease in the deficit account of the Manchester Royal Infirmary and the Barnes Convalescent Hospital, Cheadle. For the financial year just closed the deficit was £10,847, compared with £18,088 in 1926 and £22,740 in 1925.

RIVER POLLUTION.—At a meeting of the Joint Advisory Committee on River Pollution, held on Feb. 2nd and 3rd at the Ministry of Health, evidence was taken from the West Riding of Yorkshire Rivers Board, the Mersey and Irwell Joint Committee, the Ribble Joint Committee, the Thames and Lee Conservancies, and the Tame Basin Joint Committee, all whose witnesses were unanimously of the opinion that the proper unit for administration purposes was the watershed. In large watersheds such as the Trent it might, however, be desirable for the watershed board to work through subsidiary bodies in order to utilise to the full local knowledge and zeal. There was some divergence of opinion as to whether land drainage and pollution powers should be combined in the one authority. The general trend of the evidence went to show that results were achieved much more by persuasion and advice than by legal proceedings, but that these methods could only be used effectively where there was an adequate technical staff.

Public Health Services.

Antituberculosis Schemes.

All administrative tuberculosis officers were asked to furnish the Ministry with very full returns of the work done under their schemes in 1926. The Ministry has just issued to all the county councils, county borough councils, and tuberculosis joint committees in England an analysis of these returns, designed to give some idea of the scope and character of the work in each district. An explanatory statement suggests that the local authorities should make comparisons of their work with that of other districts of similar size and type with a view to considering whether they are getting the best possible for a given financial outlay. The analysis consists of tables with 46 columns giving particulars for all the districts. Cols. 1 to 3 give the population, deaths and death-rate from tuberculosis. Cols. 4 to 6 deal with the efficiency of notification and of the revision of the registers. Col. 7 gives the proportion of the total tuberculosis cases dealt with under the scheme. Cols. 9 to 12 deal with the extent to which contacts and suspects come up to the dispensary for examination; cols. 8, 13, and 14 with the amount of delay in arriving at a diagnosis; cols. 15 and 16 with the use made of sputum examinations and X rays. Col. 17 gives a measure of the coöperation between tuberculosis officers and general practitioners, and cols. 18 and 19 of the amount of supervision given to tuberculous patients in their homes. Cols. 20 and 21 provide striking evidence in some cases of the failure to carry out the provisions for domiciliary treatment by insurance practitioners. Cols. 22 to 46 deal with residential treatment, and it is suggested that a study of cols. 31 to 38 may help to secure a more economical use of available residential accommodation. A superficial glance through the long lists of figures shows an extraordinary discrepancy between one district and another which would appear to indicate a great variation in methods.

We suggest that when the next analysis is issued it would add to the interest if two more columns were added, one to show the cost of each scheme, say, per 1000 of the population, or, perhaps preferably, per 100 deaths from tuberculosis (as the Ministry pays a 50 per cent. grant this figure is readily available), and the other to show the percentage reduction in the death-rate from tuberculosis in each district during, say, the last ten years. The acid test of the efficiency of the schemes is "Are they delivering the goods?"

Name of town.	Taken from Sheffield report for 1926.	Taken from the Ministry of Health analysis for 1926. All the numbers are per 100 deaths from tuberculosis.			
	Percentage reduction in tuberculosis death-rate—1917–26.	"New" cases examined by tuberculosis officers.	"Contacts" examined by tuberculosis officers.	Hospital beds available.	Patients treated in hospitals.
Portsmouth	52·4	227	31	39	89
Sheffield ..	49·8	688	287	114	381
Plymouth ..	47·7	231	390	73	146
Leicester ..	33·3	249	30	61	178
Newcastle-upon-tyne	32·3	223	17	42	99
Salford ..	27·6	175	142	47	150

The Ministry attaches great importance to the use of the dispensary for consulting purposes and to the examination of contacts. We have before us a table in the Sheffield health report for 1926 which shows the percentage reduction of the tuberculosis death-rate during the last ten years in the county boroughs of England and Wales with populations over 200,000. The three towns with the largest reductions are Portsmouth, Sheffield, and Plymouth, and the three with the smallest Leicester, Newcastle, and Salford. The above table shows how these six towns compare as regards the examination of new cases and contacts at the tuberculosis dispensary and the provision and use of hospital beds. It also gives an illustration of the discrepancy alluded to above.

A Squabble about Scarlet Fever.

A discussion which arose last month in the council of a Midland rural district has some general interest. According to the report which we have seen one or more of those present suggested that there was some doubt whether a case of scarlet fever reported by the medical officer really was that complaint at all, though the patient had been removed to hospital on the family doctor's instructions. The chairman remarked that it was a serious matter for a patient to be in hospital for six weeks at a cost to the district of 18 guineas if there were any doubt about his complaint. It was then recalled that on the occasion of a previous dispute the medical officer had declined to visit the cases of his brother practitioners because it would be a breach of professional etiquette for him to do so. A councillor, defending the action of the medical officer, stated that the Ministry of Health had laid it down that a medical officer should not be required to visit the cases of another practitioner. To this the reply was made that the Ministry's ruling was that while a medical officer could not be expected to visit every case of infectious disease it was advisable for him to do so when it was a question of diphtheria or scarlet fever, but this was a matter for each sanitary authority to decide for itself. It is doubtful whether such a deduction could be made from the paragraph relating to infectious diseases in the latest memorandum on the Duties of Medical Officers of Health in England and Wales (using its short title). This paragraph contains the following passage:—

> "On being informed of the *outbreak* of any infectious or epidemic disease of a dangerous or unusual character within the district it is essential that he should visit the spot at once in order to inquire into the causes and circumstances of the outbreak and to take such measures for the prevention of disease as he is legally authorised to take under any Statute or Regulation in force in the district. He should also investigate any doubtful or suspected cases of dangerous infectious disease of which he learns. If in any case he is not satisfied that all due precautions are being taken he will, of course, advise the persons competent to act as to the measures which appear to him to be required to prevent the extension of the disease.
>
> "In conducting such investigations a medical officer of health will bear in mind that the examination of patients in their own homes can be made only with the consent of the patient or of those in charge of the patient. If a medical practitioner is in attendance his coöperation should always be sought."

For administrative purposes an *outbreak* may be taken to mean several cases apparently arising from a common source; scarlet fever is, of course, included in the legal definition of infectious disease of a dangerous character. Seeing that rural areas are the places where the milk-supply of towns is produced the medical officer will always bear in mind the possibility of infection of the milk; to secure the early diagnosis and isolation of any person suffering from an infectious disease transmissible by milk and so situated as to be likely to infect the milk is a matter of importance, not only to the rural community, but also to the various urban communities supplied. The Ministry will therefore expect the medical officer to satisfy himself as to the nature of any doubtful or suspected cases of dangerous infectious disease. Where he is a whole-time official there is but little danger of his visit to a patient affecting the practitioner's interest adversely. Where he is not the care of the public health is still the first consideration.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED JAN. 28TH, 1928.

Notifications.—The following cases of infectious disease were notified during the week :—Small-pox, 370 (last week 405) ; scarlet fever, 1981 ; diphtheria, 1644 ; enteric fever, 64 ; pneumonia, 1409 ; puerperal fever, 48 ; puerperal pyrexia, 110 ; cerebro-spinal fever, 9 ; acute poliomyelitis, 13 ; acute polio-encephalitis, 4 ; encephalitis lethargica, 27 ; dysentery, 3 ; ophthalmia neonatorum, 112. There was no case of cholera, plague, or typhus fever notified during the week.

The cases of small-pox were notified from the following 24 counties :—London 4 (Southwark), Bedford 8 (Bedford), Derby 12, Durham 72, Gloucester 3 (Bristol 2), Hertford 2 (Barnet), Lancaster 25, Leicester 1 (Hinckley), Lincoln, Parts of Kesteven 1, Parts of Lindsey 2, Middlesex 1 (Uxbridge), Northampton 1 (C.B.), Northumberland 14, Nottingham 24, Salop 1 (Drayton R.D.), Southampton 1 (Hartley Wintney R.D.), Stafford 1 (Burton-on-Trent), Surrey 2 (Chertsey, Guildford), Sussex East 2 (Hastings, Cuckfield), Sussex West 1 (Worthing), Warwick 29, (Birmingham 17), Yorks North Riding 19 (Middlesbrough 11), West Riding 57, Glamorgan 24, Monmouth 63.

The number of patients at the Infectious Hospitals of the Metropolitan Asylums Board on Jan. 31st–Feb. 1st was as follows :—Small-pox 10, scarlet fever 1776, diphtheria 2559, enteric fever 22, measles 1308, whooping-cough 161, puerperal fever 17 (plus 14 babies), encephalitis lethargica 70, poliomyelitis 2, " other diseases " 48. At St. Margaret's Hospital there were 11 cases of marasmus and 16 babies with ophthalmia neonatorum.

Deaths.—In the aggregate of great towns, including London, there were 2 (0) deaths from small-pox, 1 (1) from enteric fever, 102 (49) from measles, 4 (0) from scarlet fever, 31 (4) from whooping-cough, 34 (6) from diphtheria, 39 (5) from diarrhœa and enteritis under two years, and 96 (24) from influenza. The figures in parentheses are those for London itself. The 2 deaths from small-pox belonged to Bradford C.B. (See note last week.) Of the 53 fatal cases of measles outside London, 13 were reported from Manchester, 11 from Bristol, 4 from Derby, and 3 from Brighton, while the figures from Glasgow and Dublin for the same week were 33 and 10 respectively. The number of stillbirths registered during the week was 296 in the great towns, including 51 in London.

JOINT TUBERCULOSIS COUNCIL.—At a council meeting held at the House of the Society of Medical Officers of Health on Jan. 21st Sir Henry Gauvain was elected chairman for 1928, Dr. Lissant Cox vice-chairman, Dr. E. Ward hon. secretary, and Dr. J. Watt hon. treasurer, the other members being Dr. S. Roodhouse Gloyne, Dr. A. Neville Cox, Dr. L. S. T. Burrell, Dr. Peter Edwards, and Dr. Jane Walker. Dr. W. Brand reported that 29 persons had attended the course of post-graduate study at Victoria Park Hospital. Future courses had been planned as follow : In June next a course at Alton in surgical tuberculosis ; in July a course at Papworth and Cambridge with the coöperation of Sir Humphry Rolleston, Dr. P. C. Varrier-Jones, and Dr. Louis Cobbett ; in October a probable course at Edinburgh. At a luncheon following the meeting there were present as guests Sir Robert Philip (President of the B.M.A.), Sir StClair Thomson (President of the Tuberculosis Society), Dr. Rufenacht Walters (President of the Society of Superintendents of Tuberculosis Institutions), and Mr. G. Elliston (secretary, Society of Medical Officers of Health). Sir George Newman delivered a short address to tuberculosis workers in which he expressed his belief that the fight against tuberculosis was being won, the dispensary system being the winning factor. He believed that in turn and in this order we should defeat tuberculosis, rheumatism, syphilis, and cancer. The four mainstays in the tuberculosis campaign were : (1) Notification, which brought the practitioner into touch with the tuberculosis service. (2) The dispensary. He noticed that in some districts the sputum examinations were too few (at least three should be made in every negative case) ; in other instances X rays were not sufficiently utilised. (3) The sanatorium, the success of which depended on fresh air, moderate and controlled exercise, employment, and good food. The need at sanatoriums was for a greater study of the requirements of individual cases. (4) After-care. In this the practitioner and after-care organisations each played an important rôle. Our ideal should be sooner or later to make possible for everyone the sanatorium conditions of life as regards housing, exercise in the fresh air, and good food.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lt. G. S. Rutherford to be Surg. Lt. Comdr.

ROYAL NAVAL VOLUNTEER RESERVE.

Lt.-Comdr. H. C. Hedderwick is placed on the Retd. List.
Surg.-Comdr. F. H. Watson is placed on the Retd. List.

ROYAL ARMY MEDICAL CORPS.

Majs. F. B. Dalgliesh (and is granted the rank of Lt.-Col.) and C. M. Rigby retire on retd. pay.
Capt. T. C. Bowie to be Maj.
Capts. to be Temp. Capts. and temporarily relinquish the rank of Capt. : B. D. Merrin and J. B. Woodrow.
Temp. Lt. I. MacW. Bourke relinquishes his commn.

ARMY DENTAL CORPS.

R. W. Mather to be Lt. on probation.

TERRITORIAL ARMY.

Maj. (Prov.) A. H. Fullerton is confirmed in his rank.
Capt. W. Lumley, late R.A.M.C., to be Capt.
Lt. F. N. Foster to be Capt.

TERRITORIAL ARMY RESERVE OF OFFICERS.

Lt.-Col. J. B. Jamieson, having attained the age-limit, is retd. and retains his rank with permission to wear the prescribed uniform.
Maj. J. A. Davies, having attained the age-limit, is retd. and retains his rank with permission to wear the prescribed uniform.
Capt. B. Holroyd, having attained the age-limit, relinquishes his commn. and retains his rank.

ROYAL AIR FORCE.

Flying Officer Neil Innes Smith is promoted to the rank of Flight Lieutenant.
Flight Lts. J. J. Clarke and B. Pollard are transferred to the Reserve, Class Dii.

RESERVE OF AIR FORCE OFFICERS.

Flight Lt. G. R. Nodwell is transferred from Class Di to Dii.

The King has approved of the award of the Royal Naval Volunteer Reserve Officers' Decoration on Surg.-Comdrs. T. Turner and A. E. W. Hird.

THE LATE LIEUT.-COL. ROBERT TILBURY BROWN.

Sir Patrick Hehir, under whom Tilbury Brown served for 21 months (1911–13) as D.A.D.M.S. (Sanitary), Burma Division, sends us the following appreciation. An obituary notice appeared in THE LANCET of Jan. 28th, p. 207.

" He was," writes Sir Patrick Hehir, " the best practical military sanitarian that I have known. I looked on him as a born sanitary officer. We were twice on divisional manœuvres together, once in the Northern Shan Hills and once on the banks of the Taiping River on the borders of China, both in bamboo country. In the former we were encamped on the edge of a swamp with trickling streams from rice-fields as seemingly our only source of water-supply. In a few hours he found a spring on high ground and in a half-hour bamboos raised on bamboo stanchions brought the water to our 400-gallon iron tanks in which it was chlorinated. On the banks of the Taiping (our headquarters for the time being) he created one of the most beautiful and sanitary camps I have ever seen ; nothing was left unthought of. He had remarkable sanitary intuition and a genius for detail, and, being a good draughtsman, worked out his schemes on paper in a few minutes and then saw them carried out. During the time we worked together in Burma, mainly through his personal exertions and talent, the death-rate in the Burma Division was reduced 50 per cent. and the malaria-rate 74 per cent. In Burma he repeatedly suffered from gastro-intestinal trouble and at one time we were afraid that he was suffering from sprue. I ascertained from many senior officers who were with him in East Africa that he did most laudable work there under exceptionally severe circumstances in a trying climate. Besides being an excellent sanitarian he was a sound physician and a good bacteriologist. He was a good companion and a most loyal man to work with."

SOUTHWARK GENERAL LYING-IN HOSPITAL.—This hospital is appealing for £40,000 to rebuild the out-patients' department and the nurses' quarters. Last year there were 36,000 attendances in the antenatal, postnatal, and dental clinics, and there was not a single death among mothers or children. There is said to have been no appeal on behalf of the institution since 1765, the year of its establishment, when Garrick gave benefit performances at Drury-lane.

Correspondence.

"Audi alteram partem."

MOTOR-CAR ACCIDENTS AND HOSPITALS.

To the Editor of THE LANCET.

SIR,—In your issue of Oct. 22nd last you kindly published a letter from me asking for details of motor accidents treated at hospitals throughout the country. Figures reached me from 183 hospitals, representing 14,169 beds (rather less than one-third of the total available beds) and it appears that the cost to the hospitals of the country, irrespective of any fees to medical men, must be in the region of half a million pounds sterling annually. The financial burden placed upon the hospitals is unbearable, and in other respects almost unbelievable. For instance, I find that in many small hospitals the medical officers have been impelled, as the week-end approaches, to hasten the discharge of in-patients, most of whom are local residents for whom the hospital was founded, in order to have beds ready for motorists from "foreign parts."

The Hospitals Motor Accident Policy Association, of which I am chairman, have placed these statistics before various insurance experts, and I am glad to say that in a very public-spirited manner the Eagle Star and British Dominions Insurance Company, Limited, have established a policy, which for the moderate premium of 5*s.* guarantees to the hospital a payment of 10*s.* 6*d.* per day up to 30 days should the insured be admitted into the hospital as the result of an accident caused by any moving public or private motor, electric, or horse-drawn vehicle, together with a payment of 3 guineas for medical fees, which is increased to 5 guineas should the patient be detained beyond seven days. In the case of patients dealt with in the casualty department and not admitted, the payment is 10*s.* 6*d.* to the hospital and 10*s.* 6*d.* to the medical officer. Whilst greatly appreciating the action of the Eagle Star Insurance, this Association is not satisfied that the position has been adequately dealt with, but they feel that a start has been made to lighten the burden which the hospitals have been obliged by circumstances to shoulder, and they trust that further experience may enable them to secure even better provision.

Every motorist carries a map and every motorist should have an M.A.P. (Motor Accident Policy); so also should the "man in the street," and the patron of the motor-bus and taxicab. These policies will be ready for issue this week, and I am asked to suggest that intending holders should make their cheque in the form of a banker's order to be paid annually. They will thus avoid personal inconvenience and add something like 5 per cent. to the amount available for distribution amongst the hospitals. The cheque should be made out in this way:—

> "Pay now and annually on this date to the Eagle Star Insurance, 1, Threadneedle-street, E.C., the sum of £ ."

(and please write plainly) and send it to the Hospitals Motor Accident Policy Association, 6, Duke-street, Adelphi, W.C.

One interesting feature is that a motor owner may take a policy for each seat in his car. Another feature, important for motor cyclists, is that on account of the risk the company can only pay half benefit in respect of motor cyclists and sidecars; motor cyclists are therefore urged to take two policies for each seat, which will give them full cover.

I am, Sir, yours faithfully,

H. W. BURLEIGH,
Chairman, Hospitals Motor Accident Policy Association.

Feb. 4th, 1928.

FATALITY-RATES OF SMALL-POX IN THE VACCINATED AND UNVACCINATED.

To the Editor of THE LANCET.

SIR,—Dr. Garrow's figures are based upon the fallacy of comparing statistical incommensurables. As he must know well, there have been two distinct types of small-pox occurring in England during the last few years; the vast majority have occurred in the unvaccinated populations of the Northern and Midland counties, and were of the mild type—variola minor, if he likes so to term it—whilst a very small number of a severe type—variola major—have occurred in the south of England, due to infection introduced from France, Spain, &c. This distinction is not apparent in the tables published in the annual reports of the chief medical officer to the Ministry of Health, though doubtless the necessary information is available at the Ministry. By comparing the information in these tables, from which he quotes, with the accompanying text, and with the figures given in Table XL. of the Annual Statistical Reviews of the Registrar-General, I have been able to identify nearly all the deaths. In this manner I obtain the following table of deaths in England during the years 1923 to 1926:—

Age.	Vaccinated.	Unvaccinated.
Under 15 ..	0	17 (probably all northern)
15 to 30 ..	1 (1 northern)	2 (1 northern, 1 southern)
Over 30 ..	12 (3 northern, 9 southern)	2 (1 northern, 1 not identified)
Total ..	13	21

By "northern" is meant the northern and midland counties as defined by the footnote to Table IV. of the Registrar-General's statistical reviews, less Middlesex, Herts, and Essex, the remainder being the southern counties.

Assuming, then, that all the deaths in the southern counties were deaths from variola major, we may deduct them from the total deaths; this assumption is quite valid, as these deaths can be identified from the text; identification of the cases is not easy, but as those occurring in the south of England were very few—about 80—they may be neglected statistically. The amended table is as follows:—

Ages.	Vaccinated.			Unvaccinated.		
	Cases.	Deaths.	Fatality-rate.	Cases.	Deaths.	Fatality-rate.
0–15 ..	28	0	—	10,709	17*	0·158 ±0·026
15–30 ..	392	1	0·25 ±0·17	5,296	1	0·019 ±0·013
30 and over	3,618	3	0·08 ±0·03	1,713	2	0·117 ±0·070
Total ..	4,038	4	0·10	17,718	20	0·112

* 10 were under 1 year o'd.

These figures are probably accurate as far as they go, except that the small number of cases of variola major in the southern counties are included; the table gives the fatality-rates from mild small-pox in the vaccinated and unvaccinated, the advantage being in favour of the vaccinated, except at ages 15 to 30 years, where, the rates being based on a single death in each class, no deduction is possible from such meagre data. The probable error in all classes, except the youngest class of unvaccinated, is very high. Even when corrected there is a further fallacy as two of the three deaths among the vaccinated at ages over 30 years were of persons aged over 70, whilst only one death at those ages occurred among the unvaccinated. It is well known that small-pox fatality rises steeply in the later years of life. The data do not form a basis of comparison for the fatality-rates in variola major among the vaccinated

and unvaccinated, but this may be ascertained from the data of other epidemics—e.g., those given in Table II. of Dr. W. Hanna's "Studies in Small-pox and Vaccination," published in 1913.

I am, Sir, yours faithfully,

C. O. STALLYBRASS.

Public Health Department, Liverpool, Feb. 6th, 1928.

THE PRESENT POSITION OF THE VOLUNTARY HOSPITALS.

To the Editor of THE LANCET.

SIR,—Prof. Hey Groves, in your issue of Feb. 4th, arrives at a conclusion in favour of State control of hospital services by omitting consideration of fundamental principles which inspire individuals to voluntary effort. Ultimately the voluntary system of hospital management rests upon the desire of a multitude of individuals, at the head of which are the groups of men having knowledge of business, in this country commonly known as boards of governors, in the United States as boards of trustees. The whole of Prof. Hey Groves's list of arguments is rendered fallacious because he seems only to consider the voluntary work of physicians and surgeons—quite apart from the question how far that work can be called purely voluntary, the chief distinction is the freedom of the individual, unfettered by bureaucratic limitations, to apply his special talent to the improvement in treatment of the particular cases which happen to come under his care. Of far more importance in the voluntary system are the men of business, who give up a large amount of time, not "an occasional hour," to the control whether of single institutions or in coördinating the activity of many. It is these boards of governors—boards of trustees—who are the centre of the voluntary system. It is to them that gifts, small or great, are entrusted; it is to them that large sums are given without conditions by the donor during his lifetime. To them there are made bequests without such conditions as the future might render onerous.

Prof. Hey Groves, not in one passage only, shows that he is out of sympathy with boards of governors and such-like bodies in his own city. Moreover, his information is partial, derived too exclusively from medical men in the United States, which ignores all that is there of primary importance, the management of the hospitals by boards of trustees. His commencement gives his case away. It is based on the support of "very many medical men, who have given it their support and by the very few who have come forward to defend the voluntary system." He proceeds to beg the question—"Already the purely voluntary system has disappeared." That may be a truism—"In the original meaning of the term the voluntary system is already dead." That is the reverse of a truism. The voluntary principle is working more actively than ever, whether here or where Prof. Hey Groves seeks for support, in America. What is needed is better coördination with the State and municipalities.

That the voluntary system is out-distanced by more progressive countries is a statement of opinion which can be countered by a close inquiry among the actual patients in hospitals. It is sufficient for this country to point to the long waiting-lists at the voluntary hospitals on the one hand, and, on the other, to the empty beds in the buildings which Prof. Hey Groves so much admires. He drags in the question of the middle classes, again a matter for coördination, the closer association of nursing homes with the voluntary hospitals, schemes for sick insurance, &c.

Some of Prof. Hey Groves's remarks concerning recent history are strange. One great success of the Army Hospital System during the late war was the atmosphere brought in by the medical staffs and nurses from the voluntary hospitals, which both expanded and relaxed the rigidity pre-existing under military traditions. In his reference to nursing and Miss Nightingale, he forgets the truly English system of nursing developed by the voluntary work of William Rathbone and Sister Agnes Jones in Liverpool. He says much of research. There is research in which the investigator plunges into the mist of the unknown, and produces print and figures as part of the requirements of a salaried post. There is also research by one serving at a voluntary hospital, with freedom to study some peculiarity of a special case, and perhaps thereby to add one more stepping-stone for the crossing of a river hindering progress.

Dr. Graham Little and I, in a communication to the *Times*, have suggested conferences, particularly between those mentioned above, who are acquainted with the business side of voluntary hospitals, and those of municipal hospitals, such as we know in connexion with King Edward's Hospital Fund and the University of London, so far as concerns the metropolitan area. There are similarly active bodies of men in municipal and county areas. The object of such conferences may be achieved by the establishment of "advisory councils for hospital services." On such councils we rather count physicians and surgeons as among those to be called upon for special advice. We suggest a way by which further developments of voluntary effort and freedom of research may be coördinated with State and municipal expenditure. Individual effort will be encouraged; outlay derived from rates and taxes restricted. It is a solution of a practical kind, whereas the proposal made by Prof. Hey Groves is an impossible one, the burden on the tax and ratepayer would be prohibitive in amount. The "essentials of a good hospital system" (pace Prof. Hey Groves) can be summed up in one word—coördination.

I am, Sir, yours faithfully,

London, Feb. 6th, 1928. WALTER G. SPENCER.

To the Editor of THE LANCET.

SIR,—Prof. Hey Groves and I obviously stimulate each other to a renewed conviction that our own views are correct, and we must therefore, I think, agree in all friendliness to differ. In his latest article, however, I think I can detect certain inconsistencies—a detection which I hope will convert some readers to my point of view. The issue surely is a simple one, much simpler than Prof. Hey Groves describes it. It is whether all our hospitals shall in future be managed by public authorities or whether those which are now under private management shall continue to be so administered. Both systems of management—(1) by public authorities, (2) by private administration—have been tried out in our country and have resulted in two very different types of institution, the "voluntary" hospital and the municipal or poor-law hospital. The estimation in which these two types are at the moment relatively held must surely be taken as some indication of the value of these two systems compared with each other. Prof. Hey Groves's conception of the voluntary hospital is tinged with prejudice and does not correctly represent the facts. For example, is it really the case, as he states, that the acceptance by the voluntary hospitals of the Parliamentary grant of £500,000, made immediately after the war to recoup the hospitals in some small measure for the sacrifices which their increased services to the State during the war entailed, is "a violation of voluntary principles?" I purpose to expose some of Prof. Hey Groves's inconsistencies by the mere juxtaposition of statements made by him. Prof. Hey Groves writes that "one of the essentials of the voluntary system" is that "it is a charity bestowed by the rich upon the poor." A little later he cites as one of the most important charges against the voluntary system the fact that "it has failed to meet the growing need of the middle classes." He apparently sees no incongruity between these two statements! The voluntary hospital by its very nature has not yet been expected to deal with the middle classes. It is the changed position of those classes, of recent development which calls for help not hitherto required. Again, in his summary he states that "an efficient hospital system" would call for "effective fusion, coördination, or coöperation between all hospitals of every kind and variety in given areas.

This fusion must be under the control of the Ministry of Health." Immediately succeeding this pronouncement he declares that another essential of an efficient hospital service is that "there should be State aid without State control." I submit that these two statements are destructive of each other, unless he has some ingenious quibble to show that control by the Ministry of Health is not State control.

Inasmuch as the title "voluntary" seems to be capable of ambiguity it might be preferable to use the word "independent," which would emphasise the cardinal principle for which the upholders of the voluntary system are contending—namely, management of hospitals by bodies essentially independent of the State or municipality. Prof. Hey Groves seems to be somewhat confused on this point, and perhaps he and I are in effect in more essential agreement in our views than appears on the surface, for as I wrote in your issue of Jan. 21st, it is the voluntary (or independent) system of management which I am concerned to maintain, and not so much the system of voluntary contributions. That system of management entails, I think, a very large measure of "free medical service," which is one of the five qualities included by Prof. Hey Groves in his enumeration of the essentials of the voluntary system. A corollary of this freedom is a staff preponderantly officered by persons not paid for their professional services and consequently preserving complete personal independence.

Charles Lamb, spending an evening with a party of Scotsmen, expressed the amiable wish that their national poet Burns could drop in, whereupon four of the company rose as one man to point out that this was impossible, as Burns was dead. Prof. Hey Groves must, I think, be a lineal descendant of these four Scotsmen. I wrote: "We owe it to the voluntary hospitals that Sairey Gamp has been finally displaced by Florence Nightingale." I fondly imagined that this was a terse and picturesque way of saying that the standard of nursing in England had improved since Dickens created his famous character, and that the improvement was due to the training initiated and perfected by the voluntary hospitals. Prof. Hey Groves construes my script literally; he recites with professorial prolixity the biography of Florence Nightingale, to show that she received much of her training abroad, not in voluntary hospitals, and he solemnly rebukes me for being "inaccurate and misleading" in making the statement quoted!

Prof. Hey Groves writes under his list of "failures of the voluntary system" the following sentence: "Most important of all, it has utterly failed to coördinate the hospital services necessary for the community." I would venture to refer him to the articles in the *Times* of Jan. 10th and 11th, contributed by Mr. Walter Spencer and myself, in which we demonstrated that a very large measure of coöperation between hospital services in certain areas has in fact been silently accomplished by the voluntary hospitals taking the lead which their outstanding prestige has conceded them, in coöperative schemes for medical services within their area of operation, but I freely admit that this coöperation has been imperfect and in some ways haphazard, and Mr. Spencer and I suggested a scheme for the future which would preserve for them a management essentially independent of the State (upon the analogy, which we cited, of the universities), while ensuring a larger measure of coördination between hospital services.

Prof. Hey Groves conveniently ignores the question of the comparative cost of the two systems of management. Sir William Collins,[1] writing with the very complete municipal and Parliamentary knowledge derived from his position as Chairman of the L.C.C. and Chairman of Committees of the House of Commons, specifically stated in 1912 that—

> "if the hundred odd voluntary hospitals of London were put on the rates and staffed and managed after the fashion, say, of the Metropolitan Asylums Board institutions, it would mean a new charge of something like 8*d.* in the pound on the rates."

[1] Hospitals and the State. Harrison and Sons. 1912.

Inasmuch as his estimate was made in 1912 it is obvious that the figure would now be practically doubled, that being the ratio in which the cost of all hospital services has increased since 1913. My contention in my address in your issue of Dec. 17th was that we could not indefinitely go on piling up the burdens upon our ratepayers, already the most heavily taxed in the world; that economical use of our scanty resources was the crying need of our time. One of my paragraphs on this subject is as follows:—

> "The administration of the voluntary system is incomparably cheaper, because it is voluntary, than any State-controlled system could be. Moreover, the purposes to which money under State control would be applied would probably not be the same as those upon which voluntary hospitals are concentrated. They would be inferior purposes in every case, and the waste of money consequently would be even more disastrous than the actual expenditure would indicate."

This economic aspect, I submit, is of cardinal importance, and it is a comfort to me personally to reflect that economic considerations alone will in all probability effectively block for this generation at least what I submit would be the extremely wasteful substitution of State management for independent management of hospitals. I cannot envisage the political party which will be anxious to add a rate of something like 1*s.* 4*d.* in the pound in order to transform the highly popular voluntary hospital into a copy of the highly unpopular poor-law infirmary.

Dr. J. C. Muir, in his letter in your issue of Jan. 28th, has dropped a much larger brick than he is aware of. The statement that there are hundreds of permanently empty beds in the poor-law infirmaries was not, as he assumes, my own invention, but was reproduced from a recent speech made by the Minister of Health, whom Dr. Muir can hardly charge as he charges me with knowing nothing about the subject. Perhaps Dr. Muir would not have been quite so derisive of this statement had he recognised its origin.

I accepted Dr. Muir's possibly exaggerated estimate of the waiting-lists at voluntary hospitals out of compliment to him, and because the congestion which he described supported my argument as to the relative popularity with patients of the voluntary hospitals as compared with other institutions. The voluntary hospitals would welcome some relief from this congestion, and I am in agreement with Dr. Muir in thinking that when the poor-law hospitals come under the new management proposed for them and secure an improved personnel, and consequently an improvement of prestige, they will go some way towards solving the problem of dealing with redundant patients. But I was describing things as they are and not as they promise to be. In this connexion the letter which immediately follows Dr. Muir's in your issue of the 28th ult. amply corroborates my picture of the poor-law institution of the present day. Dr. Muir overlooks the very pertinent circumstance which I pointed out in my address, that the voluntary hospitals are in fact expanding with somewhat remarkable rapidity to meet the demands made upon them. In London alone in 1924 1600 beds were added to those hospitals which come under the King's Fund, and another 1200 beds in 1926, and expansion is continually in progress at nearly all the voluntary hospitals in London.

I am a medical man in full hospital and private practice who happens also to be a Member of Parliament, and I have tried as far as I have been able to act as a "Member for Medicine," which is very inadequately represented in the House of Commons. If Dr. Muir chooses to call me a politician I do not mind, but I suspect him of choosing this appellation in order to accuse me of a lack of political sagacity because I described with Mr. Spencer a system of voluntary management of hospitals in London which does not suit Dr. Muir. I am content to pit against Dr. Muir's political insight and knowledge the political insight and knowledge of the leader writer in the *Times* of Jan. 11th, who, commenting on this scheme suggested by Mr. Spencer and myself, wrote so favourably of it.—I am, Sir, yours faithfully,

Feb. 6th, 1928. E. GRAHAM LITTLE.

RECURRENT COLDS.

To the Editor of THE LANCET.

SIR,—The correspondence in your issue of Dec. 31st, 1927, on this undignified indisposition will prove exceedingly helpful. Recently, however, I have been able to dispense with many of the usual efforts, including what Dr. Graham-Stewart designates the religious use of the spray. I sacrilegiously (I will not say irreligiously) employ one of the symmetrical ureas as advocated by his neighbour, Mr. J. E. R. McDonagh. Exit the sneeze.

I am, Sir, yours faithfully,

Calif., U.S.A., Jan. 18th, 1928. A. L. GRANT.

TREATMENT OF THE MALARIAS.

To the Editor of THE LANCET.

SIR,—Referring to Dr. Carmichael Low's letter in your last issue the difficulty in the treatment of subtertian malaria up to the present time has been the elimination of the crescent from the body. The fact is that there is no known drug which destroys the crescents so effectively and in so short a time as does plasmochin and plasmochin-compound. This is the main point which has been substantiated by a number of workers. As it has been shown that quinine acts directly upon the schizonts of the subtertian parasite and plasmochin upon the crescents, the combination of these two drugs, in Dr. Low's own words, "will act better than either given alone." Dr. Low's parallel between the goose, golden eggs, and the affinity of quinine for the immature stages of the crescent in the blood stream is, in the present state of our knowledge, an incomplete ornithological simile. With further experience of plasmochin-compound and comparison of control cases Dr. Low will, I trust, see reasons for amending his rather pessimistic attitude to what may prove to be a distinct therapeutic advance in the treatment of a particularly intractable malady.—I am, Sir, yours faithfully,

Feb. 6th. PHILIP MANSON-BAHR, M.D., F.R.C.P.

"FRIGHT DISEASE."

To the Editor of THE LANCET.

SIR,—In your annotation on this condition in dogs, a certain measure of scientific caution is most properly apparent. Nor am I ignorant of what class step in where angels fear to tread. Nevertheless, I would venture to take exception to the statement that "so far as can be judged, the disease seems to be peculiar to dogs . . . nothing identical has been observed in any other species of domesticated animal." Amongst the domesticated animals man himself takes the place of honour, and should not be excluded from the survey. It is true that he does not on small provocation rush about and dash himself against trees—although even of that a typical record may be found in the works of Lafcadio Hearne. But this rushing about, this excessive freedom, cannot be the whole disease. It is known to be infectious to a high degree, and those who look closely enough may often chance on prodromata and sequelæ. Only this day have I seen a valuable dog dying of what in a human being we should call encephalitis lethargica. A week or two ago he had typical fright symptoms and shortly before that a febrile attack. Also, it is well known that in a large kennel affected with encephalitis there are often some cases of the fright disease.

This encephalitis in dogs has been very frequent of late, and a year ago in this district there was a case in which not only the canine members of a domestic circle, but two of the adults, were affected with similar symptoms. All died quickly, except one, who developed Parkinsonism. Such instances, even if isolated and atypical, give one furiously to think. I would at least plead that this fright disease be regarded as possibly only a very small part of a much more serious picture, a picture from which man himself is not excluded.

I am, Sir, yours faithfully,

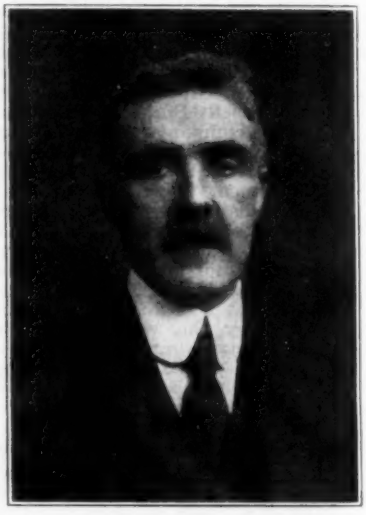
Sevenoaks, Kent, Feb. 3rd, 1928. GORDON WARD.

Obituary.

GEORGE BALFOUR MARSHALL, M.D. EDIN., F.R.F.P.S. GLASG.

WE regret to record the death of Prof. Balfour Marshall, consulting gynæcologist to the Glasgow Royal Infirmary, which occurred on Jan. 31st, in a nursing home in Glasgow, in the sixty-fifth year of his age.

George Balfour Marshall was born on June 17th, 1863, in Edinburgh, where his family had played, for very many years, an important part in business and municipal affairs. After a distinguished undergraduate career in the University, a term of duty as house surgeon in the Royal Maternity Hospital there, and a spell in Dublin, he went to Germany to prepare himself for a career in obstetrics and gynæcology. For three years he worked in Jena and Berlin, not only extending his clinical experience, but also gaining an intimate acquaintance with the work in pathological histology, which at that time was the favourite field of German research. Settling in Glasgow in 1893, he commenced practice in his specialty, graduated M.D. of Edinburgh, and was admitted a Fellow of the Royal Faculty of Physicians and Surgeons, Glasgow, in the following year. He became attached to the gynæcological staff of Glasgow Royal Infirmary, and, eventually, in 1907, was appointed to the charge of the wards vacated by the late Dr. Kelly. He continued to give loyal and valuable service to the Infirmary until his retirement in 1923. His hospital association brought him into close contact with the Extra-Mural Medical School in Glasgow, and he was one of its most popular teachers: for years his classroom in the old Western Medical School at the University Gate was crowded with enthusiastic students. This experience he used to refer to as one of the happiest of his memories. For many years he lectured in gynæcology at St. Mungo's College, and on the retiral of Dr. Robert Jardine in 1921, was appointed to the Chair of Midwifery there. He was a most attractive lecturer, vigorous in expressing his opinions to students, and always ready with a pawky wit to stimulate the laggard or silence the boisterous. His lectures in the Western Medical School formed the basis of the excellent "Manual of Obstetrics," which he published in 1911. Indeed, to the literature of his subject he made many contributions, characterised by careful observation and sound judgment. Accuracy and restraint were the special features of all his work, written or performed.



PROF. BALFOUR MARSHALL.

Photograph by T. & R. Annan, Glasgow.

The family tradition of public service was carried on by Dr. Marshall in many directions. He worked valiantly to establish and consolidate the Medical and Dental Defence Union of Scotland, and was one of its most trusted councillors. For several years

he represented the Royal Faculty of Physicians and Surgeons on the directorate of the Glasgow Royal Maternity and Women's Hospital, to the acceptance alike of patients, students, and staff. He was a faithful supporter of the local Obstetrical and Gynæcological Society and graduated through all its offices to the presidency. He was appointed by the Privy Council to be the Government visitor under the Pharmacy Act, and it was characteristic of the man that, though this work was so far removed from his own, he took pains to master every detail of it. A careful surgeon, no detail was too trifling for his attention, and his theatre work was a demonstration of calm dexterity. His widespread interests made him a delightful companion, and his caustic wit added a zest to his conversation. A loyal friend and helpful colleague, he was always ready to advise and encourage his juniors. To all he was the embodiment of courtesy, and he was one of the most modest of men. He had a great love for his country, and particularly for the north-west Highlands, where he was able not only to gratify his cult of the rod and the fly, but to secure the camera films which he spent the winter in perfecting. So recently as last autumn he won a first prize at one of the great exhibitions of photography.

For several years Dr. Marshall had suffered from catarrhal chest conditions; while he coughed, he would declare that no Edinburgh man could stand the sooty atmosphere of Glasgow. Recently he had been less fit than usual, but he carried on his duties bravely, and ten days before his death lectured with his usual sparkle to his class at St. Mungo's College. On the following day he was taken ill suddenly, and was operated upon on the same afternoon for an intestinal perforation; but a more desperate lesion was found lower in the bowel, and he passed peacefully away on the morning of Jan. 31st. He had lived a full and useful life, and his death will be deeply felt not only by the medical recognised his worth. Last year Dr. Marshall profession, but by the whole city, whose inhabitants celebrated his silver wedding, and he leaves a widow and three children.

Medical News.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS OF ENGLAND.—At the Final Examination of the Conjoint Board held from Jan. 10th to 31st the following candidates were approved in the undermentioned subjects, but are not eligible for diplomas:—

Medicine.—R. E. Artrick, Univ. Coll.; Mabel A. Baker, Royal Free; G. N. Beeston, Charing Cross; S. Behrman, St. Bart.'s; S. P. Bhatia, St. Thomas's; C. H. Birt, Birmingham; J. R. Bond, Univ. Coll.; M. T. Brockman, Guy's; Nellie Brown, Westminster; J. M. Buchanan, Melbourne and Middlesex; G. Campbell, St. Thomas's; T. H. Carr, Leeds; J. E. Crooks, Guy's; H. S. Davies, King's Coll.; P. Dickman, Charing Cross; R. C. Dracup, Bombay and St. Thomas's; C. Emery, Univ. Coll.; Marguerite M. Fenn, Royal Free; Cecilia F. Fox, Bristol; H. N. W. Harley, Guy's; Kathleen M. Henderson, Royal Free; J. S. Hensman, Cambridge and St. Bart.'s; H. P. Himsworth, Univ. Coll.; A. N. Hobbs, St. Bart.'s; S. D. Isaacs, Cambridge and Birmingham; Florence H. Johnson, Oxford and Univ. Coll.; Olive M. G. Jones and Emma J. King, Royal Free; L. H. Lerman, Middlesex; Marjorie H. Lester, Royal Free; G. W. T. McDonnell, London; G. D. Malhoutra, Punjab and St. Thomas's; Mary L. Marsh, Charing Cross; C. G. Millman, King's Coll.; N. S. Narasimhan, Guy's; C. W. Olsen, Michigan and St. Bart.'s; R. L. Peregrine, Oxford and Guy's; R. J. H. Raines, Leeds; Edith M. Redding, Charing Cross; A. Shedrow, Paris and St. Bart.'s; Thelma Shepherd, Royal Free; H. N. Skelton, Sheffield; Edith J. L. Smith, Royal Free; E. J. J. Smith, St. Bart.'s; M. Sternfeld, Freiburg; D. M. Sivasubrahmaniam, Madras and London; W. H. S. Wallace, St. Thomas's; D. B. J. Wijeyesekera, Ceylon; B. Williams, Edinburgh; J. C. F. L. Williamson, Cambridge and St. Bart.'s; J. M. Wrigley, London; and Janet D. E. Young, Lausanne and Royal Free.

Surgery.—B. A. J. Arthure, Charing Cross; Ellen M. Barnes, Univ. Coll.; N. R. Barrett, St. Thomas's; S. Behrman, St. Bart.'s; A. D. C. Bell, St. Thomas's; H. H. Boyden, St. Bart.'s; E. C. B. Butler and E. N. Callum, London; A. G. Carmichael, Middlesex; B. R. Caygill, Leeds; B. Cimbelmann, Basel and Middlesex; E. Corner, London; O. J. C. Cotton, St. Thomas's; A. Dala, Liverpool; W. J. G. Drake-Lee, St. Thomas's; G. H. Gange, Cambridge and Middlesex; G. H. Garfield, Cardiff; S. L. Gargye, Manchester; P. S. Gitlin, Guy's; F. N. Goggs, St. George's; S. Goldman, London; Helen M. Herbert, Royal Free; H. P. Himsworth, Univ. Coll.; R. Hodkinson, St. George's; P. E. G. Hopkins, Guy's; Kathleen Horne, Leeds; J. G. H. Ince, Univ. Coll.; A. W. Johns, London; G. R. Jones, Cambridge and King's Coll.; Margaret L. Jones, Univ. Coll.; G. H. Kennett, Sydney; L. B. Langmead, Guy's; E. G. Laurence, St. Bart.'s; L. H. Lerman, Middlesex; I. B. Limbery, St. Thomas's; F. W. Linton-Bogie and G. C. C. MacVicker, St. Bart.'s; F. B. Mallinson, St. George's; J. I. Mathias, Univ. Coll.; Oonnunniamma Matthai, Madras and Royal Free; I. Morris, Univ. Coll.; L. H. Morris, London; J. E. Morton, Guy's; L. J. O'Loughlin, Manchester; E. A. E. Palmer, St. Bart.'s; D. N. Parfitt, Cardiff; L. S. Penrose, Cambridge and St. Thomas's; F. Phillips, Adelaide; R. E. M. Pilcher, St. Thomas's; N. E. Pitt, Guy's; N. L. Probert and A. Rabinowitz, Middlesex; Elsie E. A. Ridley, Royal Free; R. E. Rix, Guy's; R. W. N. Robins, St. Thomas's; K. T. Samatapala, King's Coll.; H. R. D. Schofield, St. Mary's; F. G. V. Scovell, St. Bart.'s; E. H. Sears, Guy's; H. M. Sein, Calcutta and Guy's; R. Shelley and W. H. Simonds, St. Thomas's; Constance B. Smith, King's Coll.; T. R. Smith, J. E. Snow, and H. Stevens, St. Bart.'s; B. Stewart, Cambridge and Leeds; H. H. Stewart, St. Thomas's; R. Ström-Olsen, Cardiff; J. Vaughan-Bradley, Cambridge and St. Thomas's; F. H. Ward, St. Bart.'s; H. G. Wells, Westminster; Editha A. S. Wharton, Royal Free; Gladys E. Wilkinson, Manchester; F. Williams, Cambridge and London; T. P. Williams, St. Bart.'s; T. G. Willis, London; H. S. H. Wood, Middlesex; Evelyn C. Woodhead, Guy's; and R. G. Zaglama, Manchester.

Midwifery.—Constance E. Allen, Charing Cross; V. E. N. Allen, Bristol; I. T. Barling, N. R. Barrett, A. D. C. Bell, and S. P. Bhatia, St. Thomas's; K. C. Bhattacharyya, Durham; C. H. Birt, Birmingham; F. A. Blackwood, St. Thomas's; K. C. Blyth, London; V. G. Borgaonkar, Bombay; B. J. Bouché, Guy's; J. M. Buchanan, Melbourne and Middlesex; A. G. Carmichael, Middlesex; Nellie Clifton and Dorothy M. Conyers, Royal Free; T. M. Corcoran, Univ. Coll.; T. C. Dance, Birmingham; E. C. Dayus, St. Mary's; C. G. S. De Silva, Guy's; Marjorie M. Dobson, Royal Free; R. M. Dowdeswell, Cambridge and St. Thomas's; W. J. G. Drake-Lee, St. Thomas's; E. C. Duffett, Guy's; C. Emery, Univ. Coll.; E. V. Frederick, St. Bart.'s; M. A. Gaffar, Durham; G. H. Gange, Cambridge and Middlesex; I. K. Gayid, Cairo; W. N. O. George, Univ. Coll.; R. Gilmore, Manchester; P. S. Gitlin, Guy's; A. Hamid, Middlesex; H. S. Hamlin, St. Thomas's; A. El-S Handousa, G. A. S. Harris, and M. R. W. Hart, St. Bart.'s; H. P. Himsworth, Univ. Coll.; R. Hodkinson, St. George's; B. Hoffenberg, Liverpool; L. Hoffman, St. Bart.'s; C. E. Holden, Cambridge and St. Bart.'s; J. H. Hopper, St. Thomas's; E. J. Horn, London; M. C. Hounsfield, Cambridge and St. Bart.'s; I. M. Hughes, Manchester; Effie L. Hutton, Royal Free; C. F. Ind, Durham; R. A. Isenstein, Adelaide and London; L. A. Jacob, St. Thomas's; M. Jafar, Punjab; S. K. Jatar and E. J. Javeri, Bombay; L. A. Joelson and A. W. Johns, London; R. V. Kalyanpurker, Bombay; S. Paul and N. F. Kendall, St. Bart.'s; H. Y. Khwaja, Bombay; G. G. King, St. Mary's; T. C. Kohler, Adelaide and London; L. B. Langmead, Guy's; J. Lieberman, Leeds; K. Lindberg, Paris and London; F. W. Linton-Bogle, St. Bart.'s; O. T. Lloyd, Westminster; R. M. B. Lowis, St. Thomas's; M. Luckeenarain, Univ. Coll.; A. Maberly, St. Thomas's; G. C. C. MacVicker and M. J. Malley, St. Bart.'s; W. E. Mashiter, Cambridge and St. Thomas's; Olive S. May, King's Coll.; H. C. Mehta, Lahore; K. G. Milad, St. Mary's; G. Na Ranong, St. Thomas's; L. A. Newton, St. Bart.'s; D. A. Nicoll, King's Coll.; J. P. O'Donnell, Leeds; C. W. Olsen, Michigan and St. Bart.'s; M. K. Omar, Birmingham; D. N. Parfitt, Cardiff; L. S. Penrose, Cambridge and St. Thomas's; Alice D. K. Peters, Charing Cross; E. R. S. Phillips, London; F. Phillips, Adelaide; N. E. Pitt, Guy's; T. R. Plummer, St. George's; F. Pomarantz, St. Bart.'s; H. G. Pritchard, Charing Cross; S. M. Rahman, Middlesex; R. H. Raine, Durham; R. J. H. Raines, Leeds; M. H. Rashwan, Guy's; E. G. Recordon, St. Bart.'s; A. Reichlin, Leeds; J. B. A. Reynolds, St. Bart.'s; R. W. N. Robins, St. Thomas's; Eluned Saunders, Westminster; N. Schachnowitsch, Berlin and London; C. P. Scott, St. Thomas's; G. M. A. Shaikh, Bombay; D. M. Sivasubrahmaniam and D. R. E. Smith, London; E. J. J. Smith, St. Bart.'s; C. E. Soodeen, Middlesex; D. Stephens and H. Stevens, St. Bart.'s; H. H. Stewart, St. Thomas's; G. S. Storrs, Cambridge and St. Thomas's; R. Ström-Olsen, Cardiff; K. G. Sugden, St. Bart.'s; E. E. Swaby, Westminster; J. M. Taylor, St. Bart.'s; P. R. Thambugaga, Middlesex; A. R. Thomas, St. George's; Phyllis D. Towell, Royal Free; B. T. Utley, St. George's; Ercenwin A. Utting, St. Mary's; V. C. Verbi, King's Coll.; A. R. Waterhouse, Leeds; Grace E. Watson, Royal Free; T. G. Willis, London; A. Wilson, Leeds; and Janet D. E. Young, Lausanne and Royal Free.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—The following is a supplementary list of 57 Licentiates issued recently by the College as the result of the Final Examination which terminated on Jan. 31st:—

G. J. Ahern, N.U.I. and London; A. F. Alsop, St. Bart.'s; Katherine Barnett, Charing Cross; A. L. Basham, St. Thomas's; H. L. W. Beach, St. Bart.'s; V. C. Benson, Cambridge and Guy's; Olwen R. Binyon, St. Mary's; L. Blackstone, London; E. W. Bowskill, Manchester and

Charing Cross; Joan C. Clatworthy, Univ. Coll.; E. C. Cosgrove, Cambridge and St. Bart.'s; C. F. J. Cropper, Oxford and King's Coll.; J. H. Cullinan, Cape, Edinburgh, and Guy's; J. L. H. Easton, Cambridge and King's Coll.; El S. El H. El Zawahry, Cairo and Middlesex; C. W. Evans, St. Mary's; G. H. Evans, Cambridge and London; M. J. Evans, St. Bart.'s; R. Evans, Univ. Coll.; J. C. Fast, Guy's; J. D. S. Flew, Univ. Coll.; H. W. Frickel, Cape and St. Mary's; Christina Gibson, King's Coll; J. C. Gregory, Univ. Coll.; M. M. Gyi, St. Thomas's; H. N. Hallam, Cambridge and London; D. G. Hamilton, St. Thomas's; E. R. Holiday, Oxford and London; Agnes H. Jackson, King's Coll.; Nigel M. Jerram, Cambridge and St. Thomas's; P. D. Johnson, St. Thomas's; R. A. Kennedy, Cambridge and St. Thomas's; M. Koettlitz, Cambridge and St. Thomas's; A. H. Lafone, St. Mary's; L. P. E. Laurent, Univ. Coll.; Margaret Leathes, Cambridge and Royal Free; K. Lindenbaum, St. Mary's; R. F. Lister, Cambridge and London; Janet Lochore, Royal Free and Edinburgh; J. V. Macgregor, Univ. Coll.; W. A. N. Marrow, Middlesex; D. B. Mumby, St. Thomas's; M. T. O'Sullivan, Cork and Guy's; Gwynedd M. Phillips, King's Coll.; R. W. Raven, St. Bart.'s; R. W. Reid, St. Thomas's; I. Schoub, Petrograd and London; Margaret P. Shackle, Cambridge and King's Coll.; C. G. Sinclair, St. Bart.'s; . AB. Swarbreck, South Africa and Univ. Coll.; H. M. Turnbull, Durham and Charing Cross; K. R. Unger, Middlesex; R. N. Wilcox, St. Thomas's; C. E. Willing, Adelaide; G. N. Wood, Cambridge and Guy's; C. Wroth, St. Bart.'s; and B. A. Young, Univ. Coll.

UNIVERSITY OF LONDON.—The degree of D.Sc. in biochemistry has been conferred on Mr. H. G. Reeves, of King's College. The degree of Ph.D. in bacteriology has been conferred on Mr. F. M. Burnet, of the Lister Institute, and the same degree in the principles, history, and method of science on Miss D. M. Turner, of University College. At the same examination Mr. G. D. Morison, of the North of Scotland College of Agriculture, obtained the degree of Ph.D. in entomology.

MEDICAL SOCIETY OF LONDON.—The 155th anniversary dinner will be held at the Trocadero Restaurant, Shaftesbury-avenue, W.C., on Thursday, March 8th, at 7.45 P.M. Mr. H. W. Carson, the President, will be in the chair.

ROYAL MICROSCOPICAL SOCIETY.—A meeting will be held at 20, Hanover-square, W. 1, on Feb. 15th, at 7.30 P.M., when Mr. D. J. Scurfield will read a paper on A New Type of Aquarium Microscope, and Prof. J. T. Wilson will describe a convenient table for microscopy.

INDUSTRIAL MEDICINE.—As already announced, the fifth International Medical Congress for Industrial Accidents and Diseases will be held in Budapest from Sept. 2nd–8th, and the Council of Industrial Medicine has been nominated to act as the British National Committee. Dr. D. A. Coles, chairman of the Council, and Prof. Edgar L. Collis, vice-chairman, along with Sir Thomas Oliver and Dr. Theodore Thompson, are the members of the Permanent Committee of the Congress. It is hoped that a large number of medical men and women in this country who are interested in the problems of industrial disease will attend a congress which promises to be a great scientific and social event. Further information can be had from the Secretary of the Council or from the hon. foreign secretary, Dr. H. S. N. Menko, 12, Stratford-place, London, W. 1.

TAVISTOCK CLINIC FESTIVAL DINNER.—A dinner to commemorate the clinic's seventh "birthday," was held on Feb. 6th at the Mayfair Hotel, under the chairmanship of Mr. Dougal O. Malcolm, the treasurer, who proposed the health of the visitors. He explained the work and financial difficulties of the clinic, and appealed for a substantial birthday gift from the "grown-ups" present. Viscount Lascelles, responding, wittily described the plight of the mill-owners of the West Riding since skirts became short, and urged that every penny saved on dress materials should be given to the clinic, which was doing a work of great importance to the nation's mental health. Manifestations of nervous disorder ranged, he had been told, from insanity to asthma and from paralysis to eczema, and the country looked to such institutions as the Tavistock Clinic to repair the nervous system of the parents of the next generation. Sir Farquhar Buzzard, proposing "The Clinic," said that the education of the "normal" population was one of the great problems of the future. Reform in education could only come about, as in medicine, through a study of the symptoms and ætiology of bad results. Psychotherapy revealed the difficulties of the child and youth in process of education. The company had heard enough of the work of the Tavistock Clinic to arouse a strong desire to give to it. He himself would give a piece of gratuitous advice of a professional character; they must not suppress their desire. Dr. H. Crichton Miller, replying, paid a tribute to the work of the staff and claimed personal credit only for introducing the psycho-analytical farce "Suppressed Desires," which was then played. Lord Lascelles announced that annual subscriptions to the amount of £162 11s. and gifts to the amount of £375 8s. 6d. had been promised that evening.

UNIVERSITY OF MANCHESTER.—Sir Arthur Keith will deliver a Ludwig Mond lecture on May 8th at the University on Implications of Darwinism.

LISTERIAN SOCIETY.—Mr. N. D. Buxton will give the presidential address at King's College Hospital on Feb. 15th at 8 P.M. As this is the bicentenary year of the birth of John Hunter the subject of the address will be Hunter's Life and Work.

RESEARCH IN SANITARY SCIENCE.—The next election to the Grocers' Company Research Scholarships in sanitary science will take place in May. Each scholarship is of the value of £300 a year with an allowance for cost of apparatus and other working expenses. The scholarships are renewable for a second or third year.

A MOTOR CLUB'S INSURANCE SCHEME.—An insurance scheme has been established by the Middlesbrough Motor Club to enable hospitals, in any part of the country, to receive payment for treating members injured in road accidents. Members will pay a premium of 2s. 6d., and the following scale of payments to hospitals has been fixed: single dressing, 10s. 6d.; one day's detention, £1 1s.; one week, £3; and at the same rate up to five or six weeks.

LONDON HOSPITAL SUNDAY FUND.—Mr. R. Holland-Martin, C.B., has been re-elected Vice-President, Sir Charles Wakefield and Mr. John Henry Buxton hon. secretaries, and Mr. J. Arnold James secretary. Mr. A. L. Sturge, formerly chairman of Lloyd's, and the Rev. A. A. Green, of the Hampstead Synagogue, have been added to the General Purposes Committee.

ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION.—The next quarterly meeting of this association will take place on Thursday, Feb. 16th, at City Mental Hospital, Fishponds, Bristol. On Wednesday, Feb. 15th, at 7.30, P.M., there will be a dinner at the Royal Hotel, College Green. A paper entitled Some Points in the Histology of the Globus Pallidus will be read by Dr. E. Barton White and Dr. Geoffrey Hadfield, and will be followed by a paper entitled Some Notes on the Mental State in Cardiac Disease, by Dr. Carey Coombs.

ROYAL FREE HOSPITAL.—A Centenary service of thanksgiving will be held at St. Andrew's, Holborn, on Sunday, Feb. 19th, at 11 A.M., when the preacher will be the Bishop of Willesden, and the Lord Mayor and the Mayors of Holborn, Finsbury, and Islington will be present in state. Places will be reserved for those who notify the secretary of their intention to attend. St. Andrew's has been chosen for the reason that the foundation of the hospital came about through an incident which happened in the precincts of the church and is commemorated by a memorial tablet in the nave.

THE Ella Sachs Plotz Foundation has now made 55 grants for the advancement of scientific investigation and has aided workers in the United States, Great Britain, France, Germany, Austria, Hungary, Switzerland, Italy, Sweden, Esthonia, and Czecho-Slovakia. During 1927 17 new grants were made to scientists outside the United States. The only British recipient last year was Dr. J. E. Dawson, of Edinburgh, who is investigating the pathology of the breast. Applications for 1928–29 should be in the hands of Dr. Joseph C. Aub, Massachusetts General Hospital, Boston, before May 15th.

Messrs. J. and A. Churchill announce the early publication of the following books: A ninth edition of Lee's "Microtomist's Vade Mecum," edited by Dr. J. Brontë Gatenby and Dr. E. V. Cowdry, with collaborators. "Oils, Fats, and Fatty Foods," by E. Richards Bolton, second and enlarged edition of the work originally called "Fatty Foods," by Bolton and Revis. "Laboratory Manual for the Detection of Poisons and Powerful Drugs," by Dr. W. Autenrieth, translated from the fifth German edition. A new volume entitled "An Elementary Text-Book of General Microbiology," by W. Giltner.

ROYAL SANITARY INSTITUTE.—The annual congress is being arranged at Plymouth from July 16th–21st under the presidency of Lord Astor, at which the usual sectional meetings will be held for the reading and discussion of papers relating to Sanitary Science and Preventive Medicine, Maternity and Child Welfare including School Hygiene, Personal and Domestic Hygiene, Hygiene of Food, Hygiene in Industry, and Veterinary Hygiene. Conferences of various groups of public health officers are planned and a popular lecture will be given by Prof. W. E. Dixon. During the congress an exhibition of municipal sanitation and of appliances relating to domestic health and comfort will be opened. Anyone wishing to take part should address the Secretary of the Institute at 90, Buckingham Palace-road, London, S.W. 1.

DONATIONS AND BEQUESTS.—Mr. Joseph Hall, of Norton Lees, Sheffield, left £50,000 for charity, including £45,000 to his sister-in-law, Clara Ann Hall, at her absolute disposal to apply all or part thereof for such charitable purposes as are known to have been the intention of his late brother, and £500 each to the Sheffield Institution for the Blind, Sheffield Royal Infirmary, Sheffield Royal Hospital, the Jessop Hospital for Women, the Free Hospital for Sick Children, Sheffield, and the Rotherham Hospital and Dispensary.—Mrs. Maria Draycott-Smith, Nottingham, left £400 to the Nottingham Cripples Guild Fund, £200 each to the Royal Midland Institute for the Blind and the Nottingham Midland Eye Infirmary, and after a few other legacies, the residue of her property to Nottingham General Hospital and the Castle Gate Samaritan Hospital for Women, Nottingham, in equal shares.—Apart from the payment of some private bequests the whole fortune amounting to £400,000 of Mr. James Sanderson, of The Hawthorns, Galashiels, Selkirkshire, woollen manufacturer, has been left to charity. He left besides other bequests £1000 each to the Cottage Hospital, Galashiels, and the Queen Victoria Jubilee Nurses Fund. The residue of the property is to be divided into 22 parts and as to 18 for, amongst others, five for erection and endowment of cottage homes for the deserving poor of Galashiels, five to the University of Edinburgh for certain specified purposes, one part each to Edinburgh Royal Infirmary and the Royal Edinburgh Hospital for Incurables, one-half part to the Royal Edinburgh Hospital for Sick Children, and one-quarter part each to the Royal Blind Asylum and School Edinburgh and the Royal Society for Home Relief for Incurables, Edinburgh.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS

OPENING OF PARLIAMENT: THE KING'S SPEECH.

THE new session of Parliament was opened by the King in State on Tuesday, Feb. 7th. In the course of the Speech from the Throne His Majesty said that measures would be presented during the coming session for giving effect to certain recommendations of the Royal Commission on National Health Insurance. The burdens imposed upon industry and agriculture by the present incidence of local rates had attracted the anxious attention of the Government, who were now engaged upon inquiries into the possibility of affording some relief from these burdens to the producing community and into the changes in local government which would thereby be involved.

FRANCHISE BILL.

On Tuesday, Feb. 7th, Sir W. JOYNSON-HICKS (Home Secretary) gave notice of his intention to bring in a Bill to amend the law relating to the Parliamentary and local government franchise.

HOUSE OF LORDS.

TUESDAY, FEB. 7TH.

DEBATE ON THE ADDRESS.

The motion for a humble address of thanks to His Majesty for his gracious Speech was moved by the DUKE OF MONTROSE and seconded by Lord CRANWORTH.

The MARQUESS OF SALISBURY (Lord Privy Seal), speaking on behalf of the Government, and replying to certain criticisms made by Viscount HALDANE (Leader of the Opposition peers), Earl BEAUCHAMP (Leader of the Liberal peers), and others, said that owing to the shortness of the present session, due to the fact that the Government hoped to prorogue Parliament at the end of the summer and begin a new session in November, the Government would not proceed with the Factories Bill at present. Their lordships must not think, however, that the Government had abandoned that Bill. They hoped that it would be one of the measures—perhaps the principal one—which would receive a second reading before next Christmas in the next session.

The Address was agreed to.

HOUSE OF COMMONS.

TUESDAY, FEB. 7TH.

The SPEAKER, having read the King's Speech,

Colonel LAMBERT WARD moved a humble address of thanks to His Majesty for his gracious Speech.

Mr. TEMPLETON seconded.

Mr. RAMSAY MACDONALD (Leader of the Opposition) said that this was the most meagre King's Speech he had ever heard read during his time in the House. The Government's idea of this session apparently was that it was going to be pretty much of a prolonged holiday so far as they were concerned. Well, they would have to see about that, because the Opposition did not take the same complacent view of social conditions as was taken by those who had drafted this speech for His Majesty. With regard to the domestic programme outlined by the Government in the King's Speech the most prominent feature was it omissions. There was, for instance, the Factory Bill which had been promised over and over again. There was also the Washington Convention. The Government's economic policy from beginning to end had been that the nation's trade was to be built up on low wages, sweated conditions, and long hours.

Mr. LLOYD GEORGE, referring to the promised National Health Insurance Bill, said he assumed that it would deal with the recommendations of the Royal Commission which reported about a couple of years ago, and which was appointed by the late Minister of Health.

Mr. CHAMBERLAIN (Minister of Health) indicated assent.

Mr. LLOYD GEORGE: I should like to know whether there is any cash in that. Is the Chancellor of the Exchequer going to pay back the money which he extracted?

Mr. CHURCHILL shook his head.

Mr. LLOYD GEORGE: Then I can tell him that unless he does so those recommendations will be of no use at all. They will be like an engine without petrol; they will not march, they will stick. The only recommendations of the slightest value in that Commission's report are in regard to additional benefits. Some of those recommendations are invaluable, but they all mean more cash, and I do not believe that that cash is available now. Can the Minister of Health get the money back which the Chancellor of the Exchequer has taken away? The Chancellor of the Exchequer has shaken his head very emphatically. I am afraid that he is going to win on this occasion, and I do not look forward to this Bill with any sort of satisfaction; nor will anybody else.

Mr. BALDWIN (Prime Minister), who spoke immediately after Mr. Lloyd George, said that he was not sure if the right hon. gentlemen asked if there was any "catch" or any "cash" in the proposed Health Insurance Bill.

Mr. LLOYD GEORGE said that he used the word "cash."

Mr. BALDWIN: There is neither "cash" nor a "catch" in the Bill. I am told that it deals purely with machinery, which will facilitate very much the working of the Act, and it will neither cost the Exchequer anything nor bring anything into their funds. Continuing, Mr. Baldwin said that the Government hoped to have an autumn session. The Government regretted very much that in the circumstances there was no possibility of getting through any Bill which might be regarded as controversial between now and the end of July. He hoped, if they were able to begin a new session as they intended in November, that the Factories Bill might be dealt with before the end of the next session.

The debate on the Address was adjourned.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY, Feb. 13th.—5 P.M., WAR. Paper: Surgeon-Commander S. F. Dudley, R.N.: Some Aspects of the Epidemiology of Typhoid Fever in the Royal Navy.

TUESDAY.—4.30 P.M., PSYCHIATRY. Clinical Meeting at the Maudsley Hospital, Denmark Hill, S.E. Tea will be provided at 4 P.M. A series of cases of acute schizophrenia will be shown. A discussion on prognosis in acute schizophrenia will follow. Visitors will have an opportunity of inspecting various pathological specimens.

WEDNESDAY.—LIBRARY. The main Library will close at 5 P.M., but readers will be accommodated in other rooms until 6.30 P.M. 8.30 P.M., SOCIAL EVENING. From 8.30 to 9 P.M. Fellows and guests will be received in the Library by the President and Lady Berry. At 9.15 P.M. Lieut.-Colonel W. P. MacArthur, R.A.M.C., will give an Address entitled Some Medical References in Pepys (with illustrations). The Library will be open, and a number of exhibits, kindly lent by the Wellcome Historical Medical Museum, and others will be on view. Music and light refreshments.

THURSDAY.—5 P.M., DERMATOLOGY. (Cases at 4 P.M.). Cases: Dr. H. MacCormac: (1) Leukæmic Erythro-

dermia. Dr. M. Sydney Thomson: (2) Acanthosis Nigricans. Other cases will be shown.

FRIDAY.—8 P.M., OBSTETRICS. Specimen: Dr. Bethel Solomons: Two Uteri removed for Puerperal Sepsis. Short Communication: Mr. J. Ellison: Two Extreme Cases of Multiple Myomata in Sisters of under 25 Years. Paper: Mr. Frederick Roques: Encephalitis Lethargica and Pregnancy. 8.30 P.M., ELECTRO-THERAPEUTICS. Cinematograph Demonstration: Dr. R. G. Canti: Tissue Cultures, including the Action of Irradiation on Living Cells Grown in vitro.

MEDICAL SOCIETY OF LONDON, 11, Cavendish-street, W.

MONDAY, Feb. 13th.—8.30 P.M., Discussion on the Use and Abuse of Ultra-violet Light Therapy, to be introduced by Dr. Leonard Hill, Dr. O'Donovan, and Dr. C. B. Heald.

SOCIETY OF SUPERINTENDENTS OF TUBERCULOSIS INSTITUTIONS.

SATURDAY, Feb. 18th.—3 P.M. (at 122, Harley-street, W.), adjourned meeting, Dr. A. Niven: Open-air Treatment and Meteorological Conditions

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, London, W.

THURSDAY, Feb. 16th.—8.15 P.M., preceded by a demonstration at 7.45 P.M., Dr. A. R. Paterson: The Provision of Medical and Sanitary Services Among Rural Populations in Tropical Africa.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

MONDAY, Feb. 13th.—Demonstrations in the morning and afternoon by the Conservator and the Librarian.

TUESDAY.—4 P.M., Sir Holburt Waring: Hunterian Oration on the Progress of Surgery from Hunter's Day to Ours. Demonstrations morning and afternoon by the Conservator and Librarian. Festival Dinner, 8 P.M.

WEDNESDAY.—Demonstrations morning and afternoon.

THURSDAY.—Demonstrations in morning only. 3 P.M., Reception at the College. 5 P.M., Dr. G. C. Peachey: Thomas Vicary Lecture on the Homes of the Hunters.

FRIDAY.—Demonstrations.

SATURDAY.—Demonstrations.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Feb. 13th, to SATURDAY, Feb. 18th.—FELLOWSHIP OF MEDICINE LECTURE at the Medical Society of London, 11, Chandos-street, Cavendish-square, W. Mon., at 5 P.M., Mr. Duncan Fitzwilliams: Hysterical Breasts.—WEST END HOSPITAL FOR NERVOUS DISEASES, Welbeck-street, W. Mon., clinical demonstrations by Dr. C. Worster-Drought, at 5 P.M.—ST. PETER'S HOSPITAL, Henrietta-street, Covent Garden, W.C. Fri., clinical demonstrations by Mr. Alban Andrews, at 5 P.M.—ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, Charing Cross, W.C. Fri., lecture-demonstration by Mr. M. L. Hine on the Clinical Application of Perimetry, at 5 P.M. The above are open to members of the medical profession, without fee.—ST. JOHN'S HOSPITAL, Leicester-square, W.C. Course in Dermatology. Every afternoon. Pathology course arranged.—THE NATIONAL HOSPITAL, Queen-square, W.C. Course in Neurology. Every afternoon. Demonstrations. Lectures at certain times.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham.

MONDAY, Feb. 13th.—2.30 to 5 P.M., Medical, Surgical, and Gynæcological Clinics. Operations.

TUESDAY.—2.30 to 5 P.M., Medical, Surgical, Throat, Nose and Ear Clinics. Operations.

WEDNESDAY.—2.30 to 5 P.M., Medical, Skin, and Eye Clinics. Operations.

THURSDAY.—11.30 A.M., Dental Clinics. 2.30 to 5 P.M., Medical, Surgical, and Ear, Nose and Throat Clinics. Operations.

FRIDAY.—10.30 A.M., Throat, Nose and Ear Clinics. 2.30 to 5 P.M., Surgical, Medical, and Children's Diseases Clinics. Operations.

On MONDAY, Feb. 13th, and WEDNESDAY, Feb. 15th, at 2 P.M., there will also be demonstrations of gynæcological cases and eye cases by Mr. Aubrey Goodwin and Mr. N. B. B. Fleming respectively.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, W.

MONDAY, Feb. 13th.—10 A.M., Dr. Dowling: Skin Department. 11 A.M., Mr. Tyrrell Gray: Surgical Wards. 2 P.M., Dr. Trevor Davies: Gynæcological Department. 4.30 P.M., Dr. Snowden: The Anxiety Neurosis (lecture).

TUESDAY.—2 P.M., Dr. Shaw: Medical Out-patients. 2 P.M., Mr. Sinclair: Surgical Out-patients. 2 P.M., Mr. Hamblen Thomas: Throat, Nose and Ear Department.

WEDNESDAY.—10 A.M., Dr. Burnford: Medical Wards. 2 P.M., Mr. Tyrrell Gray: Operations. 2.30 P.M., Mr. Donald Armour: Surgical Wards.

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Department. 2 P.M., Mr. MacDonald: Genito-urinary Department. 2 P.M., Mr. Bishop Harman: Eye Department.

FRIDAY.—10 A.M., Dr. Pritchard: Special Medical Treatment Clinic. 2 P.M., Mr. Vlasto: Throat, Nose and Ear Department. 2 P.M., Dr. Shaw: Medical Out-patients. 4.30 P.M., Mr. Simmonds: Surgical Emergencies (lecture).

SATURDAY.—10 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Owen: Medical Diseases of Children. Medical and Surgical Out-patients, Operations, Special Departments, daily, 10 A.M. to 5 P.M., Saturdays, 10 A.M. to 1 P.M.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James's Hospital, Ouseley-road, Balham, S.W.

WEDNESDAY, Feb. 15th.—4 P.M., Dr. Stanley Wyard: Blood Transfusion.

NATIONAL HOSPITAL, Queen-square, Bloomsbury.

MONDAY, Feb. 13th.—2 P.M., Dr. Hinds Howell: Out-patient Clinic. 3.30 P.M., Dr. Risien Russell: Cranial Nerve Palsies (1).

TUESDAY.—2 P.M., Dr. Walshe: Out-patient Clinic. 3.30 P.M., Mr. Armour: Cranio-cerebral Topography.

THURSDAY.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., Dr. Risien Russell: Cranial Nerve Palsies (2).

FRIDAY.—2 P.M., Dr. Adie: Out-patient Clinic. 3.30 P.M., Dr. Martin: Muscular Atrophies.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, Feb. 16th.—4 P.M., Dr. Nabarro: Modern Methods of Controlling Certain Infectious Diseases.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.

TUESDAY, Feb. 14th.—3.15 P.M. (at the Royal Chest Hospital), Dr. F. E. S. Willis: Early Diagnosis of Pulmonary Tuberculosis.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY, Feb. 14th.—5 P.M., Dr. G. B. Dowling: Staphylococcal Infections.

THURSDAY.—5 P.M., Pathology Demonstration.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY, Feb. 17th.—4 P.M., Dr. A. Wylie: Dysphagia—Pain in Swallowing.

ST. PAUL'S HOSPITAL, Endell-street, W.C.

WEDNESDAY, Feb. 15th.—4.30 P.M., Mr. Claude Mills Retention of Urine.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.

WEDNESDAY, Feb. 15th.—4.30 P.M., Dr. W. M. Feldman Medico-Legal Aspects of Jewish Life.

CHADWICK PUBLIC LECTURES.

THURSDAY, Feb. 16th.—5.15 P.M. (in the Hastings Hall, British Medical Association, Tavistock-square, W.C.), Sir W. Heaton Hamer: The Germ Theory and the Old Epidemiology (1).

PEOPLE'S LEAGUE OF HEALTH.

WEDNESDAY, Feb. 15th.—6 P.M. (at the Medical Society's Rooms, 11, Chandos-street, Cavendish-square, W.), Dr. T. Beaton: Thought and Memory.

FRIDAY.—6 P.M., Dr. Leonard Hill: Nature and Purpose of Food.

ST. MARY'S HOSPITALS, MANCHESTER (at the Whitworth-street West Branch).

FRIDAY, Feb. 17th.—4.30 P.M. (Post-Graduate Lecture), Mr. Morley: Congenital Pyloric Stenosis.

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINICS.

FRIDAY, Feb. 17th.—3.30 P.M., Mr. Cuff: Surgical Cases.

Appointments.

BUCHANAN, R. W., M.B., Ch.B. Edin., has been appointed Medical Officer of Health, Inveraray.

COOPE, ROBERT, M.D., Ch.B. Liverp., M.R.C.P. Lond., Hon. Physician to the Hospital for Consumption and Diseases of the Chest, Liverpool.

DATE, W. ADLINGTON, M.B., B.S. Lond., L.R.C.P. Lond., M.R.C.S., Honorary Assistant Anæsthetist to the Princess Elizabeth Orthopædic Hospital, Exeter.

GLEGG, R. A., M.D., D.P.H. Edin., County Medical Officer of Health for East Sussex.

MARLEY, J., L.R.C.P. Lond., M.R.C.S., Certifying Surgeon under the Factory and Workshop Acts, Hoylake District of the County of Chester.

ROXBURGH, A. C., M.D. Camb., M.R.C.P. Lond., Physician in Charge of the Skin Department, St. Bartholomew's Hospital.

SIMPSON, G. W., M.D., B.Ch. Edin., D.P.H., Medical Officer under the Scottish Board of Health.

WATKINS, K. H., M.B., Ch.B. Manch., House Surgeon, Manchester Royal Infirmary.

Vacancies.

For further information refer to the advertisement columns.

Ayr, Glengall Hospital.—Asst. Phys. £300.
Birmingham, Queen's Hospital.—Med. Registrar. £100.
Blackburn County Borough.—M.O.H., &c. £1000.

Boofle Borough Hospital.—Sen. M.O. Also two Jun. M.O.'s. At rate of £150 and £125 respectively.
Bristol General Hospital.—H.P., H.S., and Res. Obstet. O., &c. Each at rate of £80.
Bristol Royal Infirmary.—H.P.'s, H.S.'s, Dental H.S., &c. Each at rate of £80.
Buxton, Devonshire Hospital.—Asst. H.P. At rate of £150.
Canterbury, Kent and Canterbury Hospital.—Hon. Asst. Phys. and two Hon. Asst. Surgs.
Coventry and Warwickshire Hospital.—Res. H.S. £125.
Croydon, Children's Medical Home, Waddon.—Visiting M.O. (V.D.). £150.
Croydon County Borough.—Deputy M.O.H., &c. £780.
Cyprus.—District M.O. £600.
Derbyshire County Council.—M.O. £600.
Dewsbury and District General Infirmary.—H.S. £200.
East African Medical Service.—Sanitation Officer. £600.
Edinburgh Royal Infirmary, Ophth. Dept.—Sen. Clin. Asst. £145.
Exeter, Royal Devon and Exeter Hospital.—Res. Cas. O. At rate of £100.
Grocers' Company.—Research Scholarships. £300.
Guildford Union Institution, Warren-road.—Res. Asst. M.O.
Hong-Kong Government.—Radiologist Electrologist. £740.
Hospital for Sick Children, Great Ormond-street, W.C.—Asst. Pathologist and Research Fellow. £450.
Ilford Emergency Hospital.—Sen. and Jun. H.S.'s. £110 and £90 respectively.
Ipswich, Heathfield Infirmary, &c.—Asst. Res. M.O. £250.
Leicester Royal Infirmary.—Two H.P.'s. At rate of £125.
Lincoln County Hospital.—Jun. H.S. At rate of £150.
Liverpool and District Hospital for Diseases of Heart.—H.P.
London School of Hygiene and Tropical Medicine, 23, Endsleigh-gardens, W.C.—University Chair of Biochemistry. £1300.
London Temperance Hospital, Hampstead-road, N.W.—Res. M.O. At rate of £175.
Manchester and Salford Hospital for Skin Diseases.—H.S. £100.
Mildmay Mission Hospital, Austin-street, Bethnal Green, E.—Jun. Res. M.O. £100.
Ministry of Health, Whitehall, S.W.—M.O. £600.
Nottingham and Midland Eye Infirmary.—H.S. £200.
Omdurman, C.M.S. Hospital.—Doctor required.
Queen's Hospital for Children, Hackney-road, E.—Res. M.O. £200. Cas. O. At rate of £100. Also Two H.P.'s. Each at rate of £100.
Richmond, Surrey, Royal Hospital.—Jun. H.S. At rate of £100.
Rochford Union.—Dist. M.O. and Public Vaccinator. £120.
Royal Chest Hospital, City-road, E.C.—Asst. Tub. O. £600.
Royal College of Surgeons of England.—Examiners.
Royal Free Hospital School of Medicine for Women.—University Chair of Pathology. £1000.
Royal National Orthopædic Hospital, 234, Great Portland-street, W.—H.S. At rate of £150.
Royal National Orthopædic Hospital (Country Branch), Stanmore, Middlesex.—H.S. At rate of £150.
Royal Northern Hospital, Holloway, N.—Ophth. Surg. Also H.S. At rate of £70.
St. Albans and Mid Herts Hospital and Dispensary.—Hon. Surg.
St. George's Hospital, S.W.—Asst. Radiologist. £100.
St. John's Hospital for Diseases of Skin, Leicester-square, W.C.—Hon. Med. Reg.
St. Marylebone General Dispensary, 30, Marylebone-lane, W.—Actinotherapist.
St. Thomas's Hospital.—Phys. in charge of Out-patients. Also Res. Asst. Phys.
Samaritan Free Hospital for Women, Marylebone-road, N.W.—H.S. At rate of £100.
Stockport Infirmary.—Res. Surg. O. £250.
Stoke-on-Trent, City of.—M.O. of Venereal Diseases Centre. £850.
Warwick County Mental Hospital, Hatton.—Asst. M.O. £300.
West London Hospital, Hammersmith-road, W.—Hon. Obstet. Reg.
Western Ophthalmic Hospital, 155, Marylebone-road, N.W.—Sen. and Jun. Hon. Anæsthetist. £1 1*s.* per visit.
Windsor, King Edward VII. Hospital.—Hon. Asst. Anæsthetist.
York Maternity Hospital.—H.S. £350.

The Chief Inspector of Factories announces vacant appointments for Certifying Factory Surgeons at Middleton-in-Teesdale (County of Durham), Aberayron (Cardiganshire), and at Rothesay (Buteshire).

Births, Marriages, and Deaths.

BIRTHS.

BANNERMAN.—On Feb. 2nd, at Highclere, Alton, Hants, the wife of R. G. Bannerman, M.D., of a son.

BRADSHAW.—On Feb. 3rd, at Crouched Friars, Colchester, the wife of Dr. R. D. Bradshaw, of a daughter.

THOMAS.—On Jan. 31st, at Harley-street, the wife of C. Hamblen Thomas, F.R.C.S., of a son.

WIRGMAN.—On Jan. 30th, at Victoria-grove, W., the wife of C. Wynn Wirgman, M.D., F.R.C.S., of a son.

DEATHS.

MARSHALL.—On Jan. 31st, at a nursing home, Glasgow, George Balfour Marshall, M.D., F.R.F.P.S.G., Sandyford-place, Glasgow.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

BLOOD CULTURE MADE EASY.

SINCE the days when the laboratory examination of blood first became of importance in clinical medicine pathologists have felt the need of some simple and safe method for the transmission of bacteriologically clean specimens of blood from the patient to the laboratory. Divers expedients varying according to the practice of individual laboratories have been evolved from time to time, but none has gained universal acceptance for the reason that none has been really satisfactory. The Behring Institute, of Marburg, Germany, have lately placed upon the market a device which would appear to offer the solution of the problem and which is as nearly foolproof as possible. The device consists of an evacuated glass test-tube, closed by means of

FIG. 1.

a stout hollow rubber cork with a short stiff nozzle; into the nozzle is let a glass tube, the end of which inside the hollow of the rubber stopper is bent at right angles in such a way that in the position of rest the outlet presses against the rubber and is thereby sealed; to the end of the tube outside the cork is sealed a stout hollow venipuncture needle, this in its turn being contained in a sealed glass tube. The whole apparatus (Fig. 1) is sterile when sent out. For use the sealed tube containing the needle is scratched with

FIG. 2.

a file and broken off, the needle thus being exposed; this is plunged into a vein in the usual way; as soon as blood enters the connecting glass tube the nozzle of the rubber cork is bent in such a way as to break the contact between the end of the tubing inside the test-tube and the rubber wall of the hollow stopper. Immediately this is done the negative pressure existing within the test-tube comes into play and sucks blood from the vein into the tube (Fig. 2); the rate of flow can be varied as desired by manipulation of the rubber nozzle. Though difficult to explain, the mechanism is simplicity itself and except in the most inexpert hands cannot fail but work. The whole apparatus is sold under the name of a "Venule," and these venules can be obtained either empty or filled with various solutions for the dilution of blood. Of particular interest to pathologists will be the venules containing nutrient media for the examination of blood by culture. Up to the present the impossibility of obtaining satisfactory samples of blood for this purpose has been one of the outstanding difficulties of clinical bacteriology. This difficulty would now appear to have been satisfactorily solved. The English agent for the "Venule" is Mr. W. Bredt, 41, Great Tower-street, London, E.C. 3.

A USEFUL PHOTOGRAPHIC COMPANION.

WE have received the "British Journal Photographic Almanac" for 1928. The annual is now in its sixty-third year and is a very helpful handbook for photographers, its 788 pages of letterpress and advertisements containing information of practical value. This includes illustrated articles on the service of photography in commerce, manufactures and in scientific investigation, from the aeroplane, and in big-game hunting; the use of the hand camera in recording objects of interest, especially during holiday periods, and amateur cinematography. In the Epitome of Progress practical hints are given and new methods of procedure described, while space is devoted to new cameras, lenses, and apparatus, and there is a full list of photographic societies and allied bodies in the British Isles. There are also useful formulæ and tables of exposure. The book is embellished with 64 gravure reproductions of camera pictures by noted exhibitors, and a full index makes reference easy. The annual is published by Messrs. Henry Greenwood and Co., Ltd., 24, Wellington-street, Strand, London, W.C., at 2*s.*

THE CHILD GUIDANCE COUNCIL.

A LECTURE will be delivered under the auspices of the Child Study Society by Sir Humphry Rolleston, President of the Child Guidance Council, on Feb. 16th, at 6 P.M. The subject will be Child Guidance and the lecture will take place at the Royal Sanitary Institute, 90, Buckingham Palace-road, London, S.W. 1.

The establishment of child guidance clinics in America was one of the activities of the Commonwealth Fund.[1] That fund is now financing a "Child Guidance Council" in England and is considering the creation of a clinic where social workers could be trained and maladjusted children treated before they become neurotics or delinquents. This clinic is to be attached to a university and will, it is hoped, demonstrate to the public the need, value, and practicability of work on these lines. The Council, which consists of medical men, magistrates, educationists, social workers, and members of various associations and authorities, believes that clinics of this sort are essential if children are to be saved from lives of unhappiness and crime. It is hoped that the clinics, once started, will be carried on by local effort. The Commonwealth Fund has generously undertaken to train five social workers for one year in America, to meet the expenses of well-known persons, including the psychiatrist and psychologist appointed to the clinic sent to investigate American work, and to support two social workers in the British clinic for one year. No one who is acquainted with the problems of child life can question the need for an intelligent and wise handling of the situation, and if the Child Guidance Council can avoid the pitfalls of institutionalism it will do a work of immense national importance. The Secretary is Mrs. Beach, 24, Buckingham Palace-road.

NEW PREPARATIONS.

Sulphostab.—The word is a trade mark for dioxydiamino-arsenobenzol-sodium formaldehyde-bisulphite, and is manufactured by Boots Pure Drug Company, Nottingham. It is manufactured under the Therapeutic Substances Act, 1925, and has been approved by the Ministry of Health for use in public institutions, being tested under approved conditions. The preparation is supplied in the following doses: grammes 0·025, 0·05, 0·075, 0·10, 0·15, 0·20, 0·30, 0·45, and 0·60 in single boxes and in boxes of ten ampoules. The exhibition of organic arsenic forms now a routine method in the treatment of syphilis, and this preparation has been designed for hypodermic use in view of the known drawbacks that may be present either in the intravenous or the intramuscular technique. The yellow powder is packed in ampoules ready for dissolving in sterile water, no local reaction occurs at the site of injection, and the administration itself is painless. If treatment is commenced with a minimal dose, increased gradually, infants and small children can be treated with safety. The powder should be dissolved in distilled water immediately before use—1 c.cm. of water for each 0·05 g. up to a maximum of 3 c.cm. Whenever possible the solution should be made in the ampoule by first drawing the required amount of the distilled water into the syringe and then injecting the water into the ampoule. In the treatment of children for congenital syphilis and in cases of syphilis where intravenous injection is contra-indicated sulphostab has its obvious advantages, and good results are claimed for it in disseminated sclerosis and chronic skin lesions.

Emulsion B. Acidophilus.—This preparation, which is made by Messrs. E. H. Spicer and Co., Ltd., Watford, Herts, has in the commercial list the mark "MorBacT" to indicate that it was introduced (under the name of "Bactol") by Morgenstern, and has been renamed on the suggestion of the Council of Pharmacy of the American Medical Association. It is an emulsion of the *Bacillus acidophilus* which, like *B. bulgaricus*, will establish itself in the bowel, the claim being that it does so the more easily and effectively, as being a normal inhabitant of the intestinal tract. The emulsion, in the medium of liquid paraffin and agar, has found considerable employment in intestinal troubles and especially as a remedy for constipation. The good results obtained are substantiated by many medical contributions to the *Journal of the A.M.A.*, in all of which its value in intestinal toxæmia is brought out.

New-Promonta is an organic food preparation containing the lipoids of the central nervous system combined with the carriers of the known vitamins, lime, iron, hæmoglobin, highly concentrated albumins, and carbohydrates. The significance of lipoid substances in relation to cell economy has been noted by many bacteriologists, so that it was natural that experiments with the new food should be freely conducted. As a result the literature on the subject is considerable, one of the most detailed contributions appearing in the *Münchener Medizinische Wochenschrift* from Prof. E. Friedberger and his assistants. Their experiments have been made at the Research Institute of Hygiene and Immunity at Berlin-Daheim, and were made to ascertain the effect on rats of various kinds of bread exclusively after the ingestion of New-Promonta. The work was done at the instance of, and supported by, grants from the Academy for Women's Social and Pedagogis Work, the Imperial Ministry of Food and Agriculture, and the Prussian Ministry of Agriculture. It may be summarised by saying that the results of mixing New-Promonta with bread pointed clearly in some cases to a rise in nutrition. The preparation (which is obtainable from the Promonta Company, Ltd., 127–131, Regent-street, London, W. 1), it would appear from evidence received in this office, may be applied beneficially in various neurotic conditions, owing to its nutritive qualities.

[1] THE LANCET, 1927, i., 690.

From the British Organotherapy Company, Ltd., we have received a list of *Pluriglandular compounds* containing some new preparations which, it is claimed, have proved of considerable value in the conditions indicated. The compounds are presented in capsule form, in which form the activity of the glandular substances is best preserved. They include "Opocaps" Obesity Co. (male and female); "Opocaps" Pit-Mammary Co., indicated in menorrhagia, metrorrhagia, &c.; "Opocaps" Pit-Ovarian Co., indicated in amenorrhœa, dysmenorrhœa, &c.; "Opocaps" Pluriglland (male and female), indicated in asthenia, hypotension, &c.; and several others. All the dosages in the compounds are stated to be adequate and in accordance with proven practice.

Messrs. Roberts and Co., of 76, New Bond-street, London, W., inform us that *Elixir Sedoval*, a bromide salt of strontium combined with an extract of valerian, upon which we commented in these pages recently (Jan. 14th, p. 114), will, to avoid a certain confusion that has occurred, be known as *Roboval*. A tablespoonful of *Roboval* contains grs. 6 of strontium bromide and 12 minims of extract of valerian, and such a dose may be taken two or three times a day, varied in accordance with the directions of the physician.

THE CARBON ARC IN THERAPEUTICS.

A BOOKLET with this title from the Amalgamated Photographic Manufacturers, Ltd. (3, Soho-square, London, W.1), opens with a brief historical survey of light treatment, and goes on to enumerate the conditions likely to be benefited by the use of artificial light. Emphasis is laid upon the reports of two workers (references given) that the carbon arc is better than the mercury vapour or tungsten for tuberculous adenitis or arthritis and for hyperpiesia. The spectra of different U.V. generators are compared and the claim is made that the carbon arc is the only therapeutic source directly comparable to the sun's radiation. The low U.V. region—i.e., 3000 to 2000 A.U.—is designated as noxious to the human organism, the erythema and pigmentation it produces being a protection against this harmful part of the radiation. Some improvements in open carbon arcs are described, including the multiple arc and the magnetic blower for lengthening the arc without necessitating an increase in the separation of the electrodes. The older arcs used very large currents, but the lamps described get a similar output by utilising impregnated carbons. Spectographs of the metals in common use are shown; they extend well down into the low U.V. region and show the characteristic line spectra. The carbons advocated for use with the Marion lamp are the "Natural Sunlight," an impregnated type, but no spectograph is given showing the distribution of their output. The last section of the pamphlet deals with the Marion improved therapeutical multiple carbon-arc lamp. Several floor types are described and an overhead hanging model in which a silica tray catches any particles falling from the burning carbons. All the lamps are suitable for AC or DC and have four pairs of carbons in series (presumably for use on voltages above 200—i.e., 50 volts per arc). Hand or automatic starting is available and a clever hand-operated rheostat coupled with the striking gear is available, the object of this device being to prevent the usual high current which flows when striking an open arc with a low value of resistance in circuit. All the lamps on the list are protected under Boardman patent, and are obtainable by medical men through the usual agents

FRANKLIN'S SUPER SURGEONS' GLOVES.

BY a new process Messrs. J. G. Franklin and Son, Ltd., of 15, Colvestone-crescent, London, E. 8, are manufacturing surgeons' rubber gloves which do not easily tear or perish, and which withstand repeated sterilising. It is claimed that the gloves do not harden in cold weather, and that they may be kept an indefinite period in any climate without fear of cracking, provided they are put in boxes or containers. The gloves are made with a smooth or roughened finish, and their resistance of temperature indicates that they might be useful to surgeons accompanying expeditions.

THE LANCET

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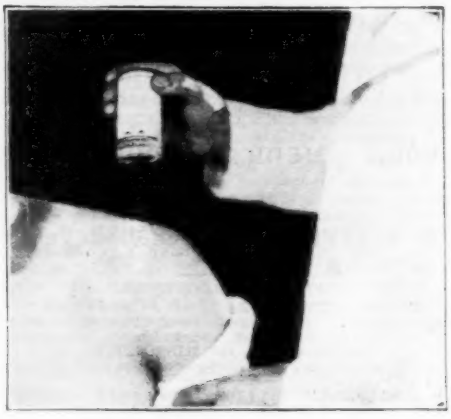

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Hunterian Oration

ON THE

PROGRESS OF SURGERY FROM HUNTER'S DAY TO OURS.

Delivered before the Royal College of Surgeons of England on Feb. 14th, 1928,

BY SIR HOLBURT WARING, M.S. LOND., F.R.C.S. ENG.

SURGEON TO ST. BARTHOLOMEW'S HOSPITAL, ETC.

TO-DAY, Mr. President and Gentlemen, we celebrate the two-hundredth anniversary of the birth of John Hunter, the founder of modern scientific surgery, the creator of our Museum, and the patron saint of our College. Since 1814 an oration—the Hunterian Oration—has been given, at first annually and then, after 1856, biennially, in this College in his memory. A large proportion of these orations have dealt with one or more of the numerous branches of Hunter's activities; in fact, it has always seemed to me that there is scarcely any part of the work of Hunter which has not been commemorated in one way or another at one of these orations.

On examining the conditions as given in the trust deed which created this oration it is stated that—

"The Oration is to be delivered in the theatre of this College on the 14th February and such Oration is to be expressive of the merits in Comparative Anatomy, Physiology and Surgery not only of John Hunter but also of such persons who have become deceased, whose labours have contributed to the improvement and extension of surgical knowledge."

The provisions of the trust creating this oration being so wide, I have thought it advisable on this occasion—the bicentenary of the birth of John Hunter—to devote the time allotted to me for the purpose and give a short review of the progress of surgery since Hunter's day to ours, in the course of which I propose to make reference to a few of the most distinguished scientific investigators, the results of whose work have proved to be of the greatest value to the science and practice of surgery.

Hunter has been regarded quite rightly, both in this country and to a lesser extent in foreign countries, as the practical founder of modern scientific surgery. After his earliest surgical days (1760–70) he formulated the idea that it was absolutely essential for a practising surgeon—who wished to practise his art with the greatest prospect of success and benefit to his patients—to have a very close and detailed knowledge of the structure and functions of man in health; that he should also be familiar with, again in every detail, the changes which take place in man during the onset, course, and development of any disease, which he is called upon to treat; and furthermore, that he should also have a comprehensive and detailed knowledge of the vital processes which take place in the tissues of the patient during the period of recovery from disease and after the performance of a surgical operation.

From these facts it will be seen Hunter fully realised that a minute and thoroughly comprehensive knowledge of the pathological processes occurring in inflammation and growth is the real basis of a considerable amount of practical surgery. This holds to the present day.

The method of investigation which Hunter appears to have carried out when examining any subject was the following. He first made himself master of the details and minute structures of an organ or tissue and then investigated its functions. In making these investigations he did not hesitate to compare the structures and functions of animals with those of man. After having made this extended structural and functional examination he reflected upon and reviewed the whole and then came to conclusions. After he had done this he then in a similar way investigated the structure and functions of organs and parts of living bodies in connexion with the onset, course, and result of disease. This consideration of structure and function in normal conditions, followed by a consideration of the structure and function in similar diseased conditions, is really the basis upon which Hunter commenced to make surgery a real science. He for one thoroughly understood that in order to fully comprehend the nature of a disease of an organ it is absolutely essential to be familiar with the structure and functions of such an organ under healthy conditions.

PHYSIOLOGY.

In connexion with the ideas which were formulated by Hunter concerning the practice of surgery, it is very interesting to read his physiological works and his speculations on the "basis of life." The condition of physiology in Hunter's student days was very little advanced. Hunter himself appears to have derived a considerable portion of his knowledge of physiological processes occurring in man from his direct observation of similar processes occurring in animals and even in plants, in addition to the modifications which he observed in man during the treatment of his patients.

The Vital Principle.—Concerning Hunter's speculations on the "basis of life"—he calls it the "vital principle." Hunter, like every true physiologist, instead of trying to theorise as to what was the exact chemical or physical basis of life, investigated all the signs and conditions under which life shows itself, and also dissected where possible, or examined in minute detail, all structures which showed signs of life. By these means he was able to formulate within his own mind what he himself understood by life or the "vital principle," or whatever the condition may be called.

Hunter believed that "life existed in every part of the animal body" and this life, or "vital principle," made every part of the animal body susceptible to the impressions which excite action. Animal matter he considered as a special or peculiar combination of other matter, and this animal matter, when endowed with life, had something added to it which he called "an arrangement of the most minute particles" or the "principles of life." His own crystallised conclusion as regards life may be expressed thus: "Life is a power superadded to matter, and is a property we do not understand; we can only see the necessary steps to it."

Since Hunter's day every advance in our knowledge of chemistry and physics has been used in attempting to explain the onset and course of disease, and the actual biochemical and biophysical processes which occur in living matter or matter endowed with the characteristics of life. So far, however, these researches have given us more enlightened ideas of the chemical and physical conditions under which "life" may exist and may be destroyed, but no ultimate chemical or physical explanation has been discovered of the true or real chemical or physical basis of life.

The first subject which I wish to discuss as being of supreme importance in the progress of surgery is what is now called

IMMUNITY AND PREVENTION OF DISEASE.

During the period of Hunter's life (1728–93) little or nothing was suspected or known of what we now describe as immunity. Jenner (1749–1823), an intimate friend and pupil of Hunter, was the first medical practitioner in this country to appreciate the great value of inoculation against disease. He noticed in his practice that milkmaids who had contracted cow-pox from the udders of cattle when milking did not take small-pox. According to Baron,[1] in his "Life of Dr. Jenner," the first inoculation was performed by Jenner upon a country boy aged 8½ years (named James Phipps), in May, 1796. He inoculated the boy with the matter obtained from vesicles upon the skin of a milkmaid suffering from cow-pox. Almost two years later in a similar manner he inoculated his own son along with several other children. As a result of these investigations inocula-

[1] Baron, J.: Life of Dr. Jenner, 1838, ii., 44.

tion of children with the exudation from the vesicles of persons suffering from cow-pox was used as a protection against the possible subsequent development of small-pox.

As we all now know, laity and otherwise, the ravages of small-pox have practically been set aside in this country by the systematic practice of vaccination. It is a very rare occasion nowadays in England to meet with anyone who has features disfigured with pits, the result of previous small-pox.

BIOCHEMISTRY.

The discoveries in biochemistry, such as those of v. Behring (1854–1917), Koch (1843–1910), Ehrlich (1854–1915), and Wassermann (1866–1925), have given us very valuable means both of diagnosis and treatment.

Diphtheria Antitoxin.—v. Behring, in 1890, discovered the antitoxin of diphtheria and found that by injecting this antitoxin into patients affected with the disease diphtheria could be controlled and rendered practically innocuous. Up to that time a considerable proportion of patients suffering from diphtheria died from one condition or another, a large number of them having to be submitted to tracheotomy on account of laryngeal obstruction due to diphtheritic membrane. In England, at the present day, owing to the general use of v. Behring's diphtheria antitoxin, it is extremely rare to see a patient suffering from diphtheria in whom tracheotomy is necessary. At St. Bartholomew's Hospital, in my student days, tracheotomy for tracheal obstruction due to diphtheria was a very common operation. Nowadays it is practically never seen. In 1890 the number of patients treated in this way was 47 and in 1927 there were none.

Antitetanic serum, which was discovered by v. Behring and Kitasato in 1892, was used extensively in the prevention and treatment of tetanus during the Great War. The soil of the low-lying lands of Flanders is said to be almost always infected with the bacillus of tetanus (discovered by Nicolaier in 1884); hence gun-shot wounds sustained by soldiers in this area were prone to become infected with the organism which caused an attack of tetanus. It has been stated that the death-rate among inoculated soldiers suffering from tetanus during the Great War was 23 per cent., as compared with 53·5 per cent. in those who had not received preventive treatment. Other diseases which have been treated successfully either by prevention or cure in a similar biochemical manner are hydrophobia, typhoid, and anthrax.

Many attempts have been made to render patients immune from streptococcus infection by the injection of vaccines. At the present time, however, it does not appear that any certain remedial measure, biochemical or otherwise, apart from surgical asepsis, has been found which can be relied upon for absolutely preventing the occasional occurrence of a streptococcal or staphylococcal infection after an operation. Some success has been claimed to have been obtained with antistreptococcal serum in connexion with possible infection, but the exact value of this is not clear at present. Certainly, in my experience, there is no streptococcal antitoxin or serum which can be injected into a patient and be relied upon to absolutely prevent or cure infection with virulent pathogenic streptococci in all cases.

Insulin.—The biochemical researches of Banting and Best, of Toronto, in 1921 and subsequently, led to their discovery in, and isolation from, the pancreas of a substance which was named "insulin." The administration of this substance so improved the metabolism of carbohydrate material by diabetic patients that in many cases operations which previously had been thought inadvisable and dangerous have been rendered possible, and the lives of a large number of patients very considerably prolonged. Best has recently stated that in his opinion the lives of about 200,000 diabetic patients have been temporarily saved by the use of insulin.

Anæsthesia.—Another most important epoch in the progress of surgery was the discovery of general and local anæsthesia. Although a certain amount of anæsthesia, usually induced by inhalation or taking internally of narcotic substances, such as mandragora, hyoscyamus, certain types of hemp, and opium, had been practised during surgical operations in early days; in Hunter's time this method of alleviation or diminution of pain seems to have been practically entirely forgotten and to have gone out of use.

As I have already said, every discovery of importance in chemistry and physics which has been made since Hunter's day can truthfully be said to have been utilised sooner or later by application to surgical diagnosis and treatment. Thus the discovery of hydrogen in 1766 by Cavendish, nitrogen in 1772 by Rutherford, and oxygen and nitrous oxide gas in 1774 by Priestley, were the real beginnings of the application of chemical substances for the production of anæsthesia in surgical operations. Nitrous oxide gas appears to have been made use of first as an anæsthetic for the diminution of pain in the extraction of teeth. It is stated that Humphry Davy, about 1800, had used this gas for the alleviation of pain due to a diseased tooth. He afterwards stated as a result of this experience that "nitrous oxide seems capable of destroying pain. It may be used in surgical operations where there is no great effusion of blood." Unfortunately, this suggestion of Davy's was not made use of by surgeons, and it was almost 50 years later that the value and use of nitrous oxide gas for the induction of anæsthesia was appreciated and understood. Faraday, another chemist, seems to have been one of the first to recognise the anæsthetic properties of ether. In 1818 he pointed out that "when the vapour of ether is mixed with common air and inhaled the effects are similar to those caused by the inhalation of nitrous oxide."

From this period onwards a number of observers made use of the inhalation of gases to diminish pain during surgical procedures. Henry Hill Hickman—a young man—who became a Member of this College in 1820 and practised in Ludlow, Shropshire, from 1820–28, made experiments, in the autumn of 1820, on the possible anæsthetisation of animals, at first with carbonic acid and then with nitrous oxide. His proposals concerning the use of nitrous oxide gas for the production of anæsthesia and its utilisation in connexion with surgery were received very sceptically and generally condemned by the surgical profession in this country. So much so that he communicated with the King of France asking that an inquiry be made by the physicians and surgeons of that country as regards the value and correctness of his experiments. This communication was sent to the Académie Royale de Médecine de Paris, which body appointed a committee to investigate the matter. Nothing, however, came of this, although Hickman requested that he might be allowed to demonstrate the result of his experiments to the Paris Academy. Unfortunately, this young and enterprising surgeon died from tuberculosis the following year at the age of 29.

Inhalation of ether and also of chloroform seems to have been practised as a means of intoxication by young men in the fourth decade of the nineteenth century. At first the drug was only inhaled to produce intoxicating results, but by an accident its anæsthetic properties were discovered. In 1839 a negro boy, who appeared at a festivity in Athens, Ga., while ether was being inhaled by the participants, refused to take part. Some of the youths forcibly placed a handkerchief soaked with ether over his mouth and nose. After a struggle the young negro became quiet and his tormentors desisted. Instead of getting up he remained asleep and did not wake up until one hour afterwards. This seems to be the first instance of prolonged anæsthesia by the inhalation of ether.

Crawford Long, a medical practitioner in Georgia, appears to have been the first American surgeon to make use of ether in the production of anæsthesia during the performance of a surgical operation. On March 30th, 1842, he gave ether to a patient for the removal of a tumour from the neck. This case being so successful Long continued to make use of ether for

surgical operations, and performed eight such operations between 1842–45. Long, although he made no secret of his discovery, did not publish the fact to the world, and it was not until others had made a similar discovery that his experience became generally known. Two years later, in 1844, Wells, a dentist in Hartford, Conn., made use of anæsthesia by nitrous oxide for the extraction of teeth. Although Wells had attempted to produce anæsthesia with ether, he had not been able to continue to do so owing to the difficulties and choking sensations which were produced. Morton, however, who had been a pupil of Wells, was familiar with the properties of ether and independently discovered its anæsthetic qualities four years after the discovery by Long. Apparently the first public exhibition of surgery without pain was given in Massachusetts General Hospital in October, 1846, when a patient was operated upon by Warren for removal of a vascular tumour of the neck after being anæsthetised with sulphuric ether.

Ether was first used in England for the induction of general anæsthesia during the performance of an operation (removal of a tooth) in December, 1846, and two days later ether was administered to patients at University College Hospital by Squire for Liston, who amputated the lower extremity through the thigh in one patient, and also in another removed an ingrowing toe-nail. During the following year (1847) Simpson, of Edinburgh, used ether in obstetric practice and found the pains of labour could be abolished thereby, whilst the uterine contractions were not interfered with. The next year (1848) Simpson, who was somewhat dissatisfied with the use of ether on account of the irritation which it produced in the lungs and bronchial passages, first made use of chloroform. This substance was first discovered at about the same time by Soubeiran (in 1831) and Liebig (in 1832), and its composition was first accurately described by Dumas in 1835. Since this period (1847–48) ether, chloroform, nitrous oxide, in many and various combinations, and other substances, have been used for the induction of surgical anæsthesia. Recently a most important combination which has been made use of is that of nitrous oxide, oxygen, and a small amount of ether or chloroform. This combination is especially useful and safe when administered by the intratracheal method.

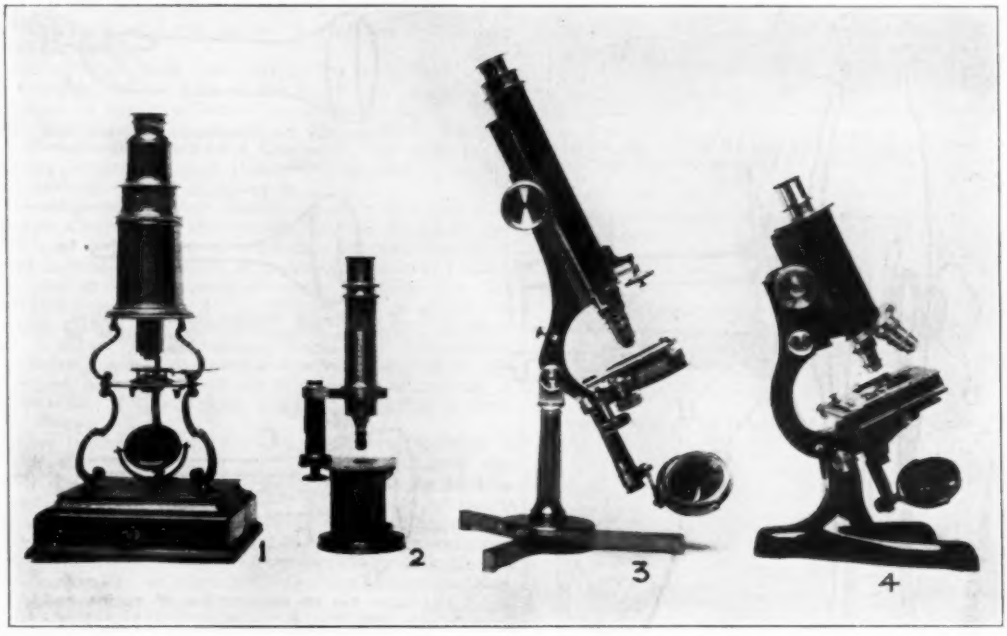
Local Anæsthesia.

Cocaine.—I now come to "local anæsthesia." Cocaine as an alkaloid was first isolated apparently by Godeke about 1855 and some points as regards its power of producing local anæsthesia were noticed. No definite advances were made, however, until 1874, when Bennett showed that cocaine, applied to living tissues, had the power of causing local anæsthesia. V. Anrep, however, in 1878 appears to have been the first to completely investigate the anæsthetic properties of cocaine by injecting a dilute solution (0·003–0·5 per cent.) underneath the skin, and in connexion with this made the suggestion of its possible value for producing anæsthesia for surgical operations.

In the following year (1879) its powers of producing local anæsthesia were demonstrated in connexion with the eye. This use of cocaine was worked out in complete detail by Karl Koller, who showed that complete anæsthesia of the eye could be produced by the use of a 2 per cent. solution. The results of Koller's experiments were first published and discussed at an ophthalmological congress in Heidelberg in 1884. Since then this drug has been used increasingly for the production of anæsthesia in all kinds of surgical operations. In the early stages of its use some difficulties were met with in connexion with poisoning by absorption, but these were soon overcome.

Novocaine.—Considerable progress in the method of induction of local anæsthesia has been made since that date by the discovery of novocaine, a synthetic product derived from coal-tar (para-amido-benzoyl-diethyl-amino-ethenol hydro-chloride), by Alfred Einhorn in 1905. So much so that at the present time a considerable number of major surgical operations, such as removal of tumours of the thyroid, gastrostomy, radical operation for hernia, and

FIG. 1.



Illustrates examples of microscopes used from Hunter's day to ours, including those used by Pasteur and Lister. 1 = Microscope of 1760. 2 = Microscope used by Pasteur. 3 = Microscope used by Lister in his work on the circulation in the frog. 4 = Microscope as used to-day.

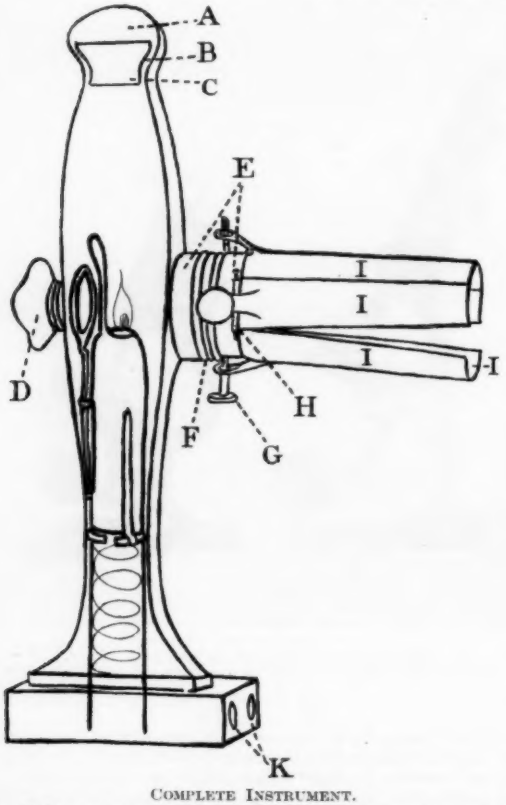
[Copyright: Wellcome Historical Medical Museum.

even almost any major and minor operations, can be done painlessly and in certain cases with greater safety to the patient, by the use of a dilute solution of novocaine, administered by the infiltration method.

Stovaine.—Another variety of anæsthesia, or analgesia—spinal—can be induced by the injection of a solution of stovaine into the lower portion of the spinal theca. This form of anæsthesia is especially used in operations on the portion of the body below the diaphragm, such as prostatectomy or hysterectomy, when there are contra-indications, such as affections of the lungs, to the administration of a general anæsthetic.

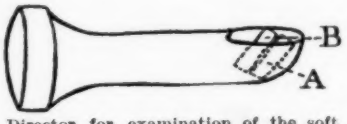
The net result of all these discoveries and improvements in connexion with surgical anæsthesia—general and local—is such that almost any desirable and justifiable operation can now be performed by the dexterous surgeon well trained in anatomy and technique, painlessly and with very slight anæsthetic risk to the patient, when the administration of the anæsthetic is carried out by a well-trained anæsthetist.

FIG. 2.—BOZZINI'S URETHROSCOPE.



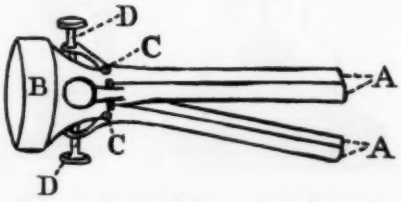
COMPLETE INSTRUMENT.

A = Hollow spherical globe forming top of instrument. B = Rods of metal supporting A. C = Aperture into which damp sponge can be inserted. D = Eyepiece (expanding). E = Expanding connective piece, giving free movement of each director. F = Expanding leather or metal rings. G = Screw for expanding section I. H = Hinges. I = Sections of director. K = Air aperture, leading up to light.

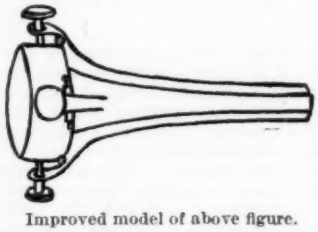


Director for examination of the soft palate, &c. A and B = Mirrors reflecting light.

Delicate director, made of silver, and used for examination of female urinary bladder. A = Expanding rings.



For use in examination of vagina and rectum. A = Four sections of director. B = Rings to which sections are fitted. C = Hinges attached to B. D = Screws for widening director.



Improved model of above figure.

PATHOLOGY AND MICROSCOPICAL DIAGNOSIS.

The publication of Virchow's (1821–1902) work on "Cellular Pathology" in 1858 was a great incentive to surgeons to study the histological basis of a considerable number of surgical diseases, especially all forms of new growth. From this period (1858) to the present time there has been a continuous advance in our knowledge of the pathology of surgical affections, one of the latest, perhaps, being the recognition of the different histological characteristics of malignant growths. This has enabled surgeons to be in a much better position as regards giving a correct prognosis after an operation for malignant disease. These advances have been made possible by the improved construction of the microscope and the knowledge of the reactions of human and other tissues to different varieties of dyes and stains. The improvements which have been made in the microscope since Hunter's day have been very considerable. In Hunter's time the microscope was an instrument which was little more than a simple magnifying lens.

Compound Microscope.—The principles of the compound microscope were discovered and developed by many physical observers, one of whom was Joseph Jackson Lister, the father of Lord Lister, in 1830. The discovery of the principle of the homogeneous immersion lens, followed by great improvements in the construction of lenses, which were called apochromatic, have enabled a large number of researches in histology and bacteriology to be possible. Fig. 1 illustrates examples of the microscopes in use from Hunter's day to ours, including the microscopes used by Pasteur and Lister. (Fig. 1.)

Use of Reflected Light.

The first surgeon to utilise reflected light in the investigation of deep spaces or cavities of the body was Bozzini,[1] of Frankfurt-am-Main, who invented, in 1805, a form of urethroscope and also other forms of

[1] Bozzini, Dr.: Lichtleiter, eine Erfindung zur Anschauung innerer Theile und Krankheiten, Neues Jour. d. pract. Heilkunde, 1806, xvii., 107.

"-scopes." Each consisted of a hollow tube along which light was reflected by a mirror. (Fig. 2.) No practical results, however, emanated from this discovery at the time, and its use remained quiescent apparently for a considerable period.

The next observer to make use of reflected light in the examination of patients was Helmholtz, who invented the ophthalmoscope in 1851. The original ophthalmoscope which he invented was, as regards its success in working, dependent upon the reflection and concentration of a source of light, usually a candle or a lamp. By its use ophthalmology became established on a scientific basis. Soon afterwards, in 1855, Manuel Garcia invented the laryngoscope, which was used by Toek, of Vienna; then followed the rhinoscope, discovered by Johann Czermak in 1859. Nitze and Leiter made the most rapid advances in the utilisation of reflected light for interior investigation of the body by combining the principle of the telescope and reflected light and the production of the cystoscope in 1877.

The value of these instruments for investigation of the recesses and cavities of the body was enormously increased by the invention of incandescent light. Paul Jablochkov, in 1876, invented the electric candle, and Swan and Stearne, of England, and Edison, of America, improved upon this invention and produced incandescent electric lighting in 1880.

Incandescent Electric Light.—David Newman, of Glasgow, improved the cystoscope as designed by Nitze and Leiter, and in 1883 was the first to make use of incandescent light in connexion with it. With this instrument it became easily possible for the practised manipulator to investigate and diagnose the various conditions affecting the urinary bladder. Fig. 3 gives the details of Newman's cystoscope. The laryngoscope was also further developed and improved, and the diagnosis of surgical affections of the interior of the larynx was made possible in their early stages.

Other forms of "-scopes" for the investigation of the interior of the body which rapidly followed the earlier discoveries were the sigmoidoscope by Bodenhamer in 1863, afterwards perfected by Kelly, of Baltimore, and Strauss, of Berlin; the œsophagoscope by Kussmaul in 1869, as well as the first gastroscope during the same year (later perfected by Mikulicz in 1881, and the bronchoscope by Gustav Killian in 1898.

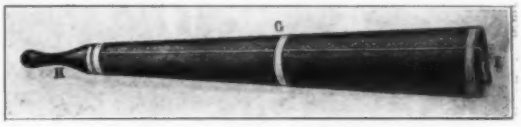
Thoracoscope.—The latest application of the combination of the telescope and electric light for clinical and diagnostic purposes is the thoracoscope. This is in reality a slight modification of the straight cystoscope such as is used for the investigation of the urinary bladder in children. In using it a trocar and cannula are passed into the pleural cavity on the side which it is wished to investigate and an artificial pneumothorax is induced, and then the interior of the pleural cavity and anything projecting into it are visually investigated through the telescope of the instrument. A similar but much larger instrument is used for investigation of the interior of the stomach. In practiced hands the use of this instrument has given, in a limited number of cases, moderately good results, but in the diagnosis of doubtful cases the appearances seen through it cannot be looked upon as definitely pathognomonic. The practical value of the gastroscope, however, in diagnosis is problematical, owing to the difficulty of correctly interpreting the conditions seen through it, and the fact that it cannot be used easily, when a patient has been anæsthetised.

Lithotrite.—One example of the application of improved mechanical methods to surgery was the invention of the lithotrite and vesical evacuator by Bigelow in 1878. With this instrument patients were successfully treated and cured of stone in the urinary bladder without any cutting operation. Since Bigelow's day the instrument has been considerably improved in detail, including the addition of a cystoscopic attachment, though the essentials are absolutely the same. Expert operators can obtain excellent results by this method. In hot and tropical countries such as Egypt and India, where stone is prevalent and the natives are not readily amenable to the discipline—aseptic and otherwise—necessary for a successful surgical operation, this method in the hands of the skilled operator has enormous advantages.

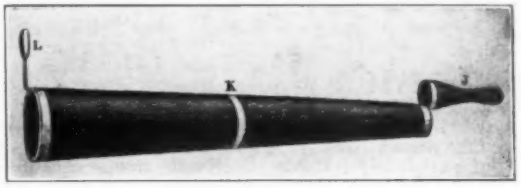
Bacteriology.

The next avenue of progress in surgery is that branch of biology and biochemistry which we call bacteriology. Hunter, of course, was ignorant of bacteriology, since bacteria had not been discovered in his day. It is of interest to note that in his surgical lectures, given in 1785, he states in connexion with fermentation: "Fermentation appears to be a process peculiar to dead vegetable or animal matter, and when

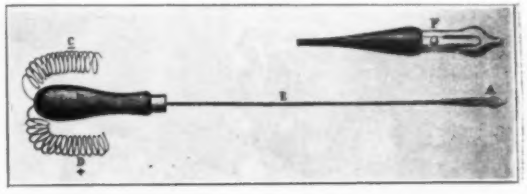
Fig. 3.—*Newman's Cystoscope.*



Speculum (G). Cover (to protect glass disc and facilitate introduction) in position, ready for introduction into bladder.



Cover (J) rotated by handle (L). In position after it has been introduced into bladder.



F = Electric lamp. A, B = Lamp and handle. Connected with the handle (B) by a thin rod (E), in which the wires from the battery run. The lamp, when connected with two Grove's cells, gives light equal to one candle.

we find a tendency to fermentation we may conclude that there is a defect of the living principle." The modern science of bacteriology and its possible application to surgery really commenced in 1857, when Pasteur published his paper on Lactic Fermentation and subsequently his paper on the Influence of Oxygen on the Development of Yeast and on Alcoholic Fermentation in 1861.

Antisepsis and Asepsis.—The adoption by Lister of his antiseptic doctrine in connexion with surgery in 1867, which really followed the work of Pasteur, was the commencement of what may be known as advanced surgery on a scientific basis. The general acceptance of Lister's doctrine and its application to practical surgery was slow in this country. However, in the late 'eighties and early 'nineties its practice became general and was quickly followed by the aseptic doctrine. The practice of modern surgery is really based on a combination of antisepsis and asepsis, principally the latter. All the points, however, on the subject of Lister were discussed by you, Mr. President, on this day last year. It is sufficient for me to say that the practice of asepsis and antisepsis in surgical operations has enabled surgeons to submit to operation

with success every organ and almost every part of the human body. The surgery of the abdomen was first perfected, especially by von Billroth, of Vienna, in connexion with gastro-intestinal operations and by Spencer Wells and Lawson Tait as regards operations upon the ovaries, uterus, and Fallopian tubes; then that of the brain and cranial contents, and more lately that of the thorax and its contents.

Many difficulties were experienced by surgeons in the earlier days of the practice of asepsis and antisepsis

FIG. 4.

Amputation in Hunter's days.

in procuring entirely reliable "sterilised absorbable suture and ligature material." Lister attempted to make his "catgut" antiseptic by soaking it in carbolised oil. [Here Sir Holburt Waring showed a bottle illustrating the method used by Lister, the bottle being the one which was actually used by him.] At the present day by improved methods of preparation completely reliable absorbable sterile catgut can be obtained from commercial sources, put up in sealed glass tubes which can be boiled before use.

[The orator here illustrated the extent of the progress of modern operative surgery in one

FIG. 6.

Arrangements for operation in 1820. Amputation at shoulder.

aspect by a skiagram of a tumour of the chest in which the position, extent, and relations were shown. It was a representation of the chest being opened and a tumour removed, the patient having been anæsthetised and positive intratracheal pressure induced by the anæsthetist so as to enable the patient to breathe satisfactorily after the lung has collapsed.]

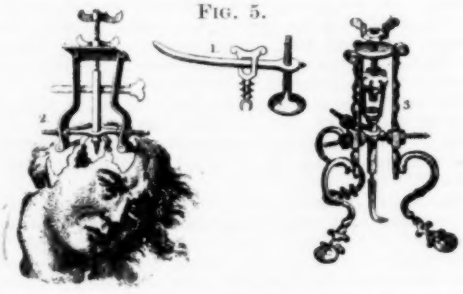
The net result of the practice of asepsis in operations is that infection of, and suppuration, in operation wounds is almost non-existent in most modern hospitals, and the mortality from surgical operation has been very greatly reduced.

TRANSFUSION OF BLOOD AND ITS APPLICATION TO SURGERY.

Transfusion of blood, either directly from one individual to another or indirectly, was first practised apparently on animals by Lower in 1665 and in man by Denys, of Paris, in 1667. No serious progress was made, however, in the application of this procedure to surgery until the latter part of the nineteenth and the beginning of the twentieth century.

Eisenberg discovered in 1901 that the blood serum of both diseased and normal individuals, when injected into another individual of the same race, was liable to hæmolyse the blood of the receptor. After this discovery Jansky in 1907 divided the blood of human beings into four groups, and in 1910 Moss repeated

FIG. 5.



Cranial surgery in the days of Hunter. Trephining and trephine.

this investigation and graded individuals according to the character of their blood into four groups. Further, the advances made possible by our knowledge of biochemistry and bacteriology have enabled the indirect method of transfusion of blood to be very much perfected. So much so that at the present time it is quite an easy matter for a person who has mastered the technique to obtain blood from a suitable selected donor, keep it sterile and uncoagulated by the sodium citrate method, and to inject it immediately into the blood-vessels of the recipient. These procedures are now in quite constant use in

FIG. 7.

Operation being performed in early days of Listerian practice.

hospitals and surgical practice in certain types of serious injury or disease, especially when a large amount of blood has been lost by the patient, and have proved of great advantage in enabling operations to be done and the lives of patients saved thereby which otherwise would have been lost.

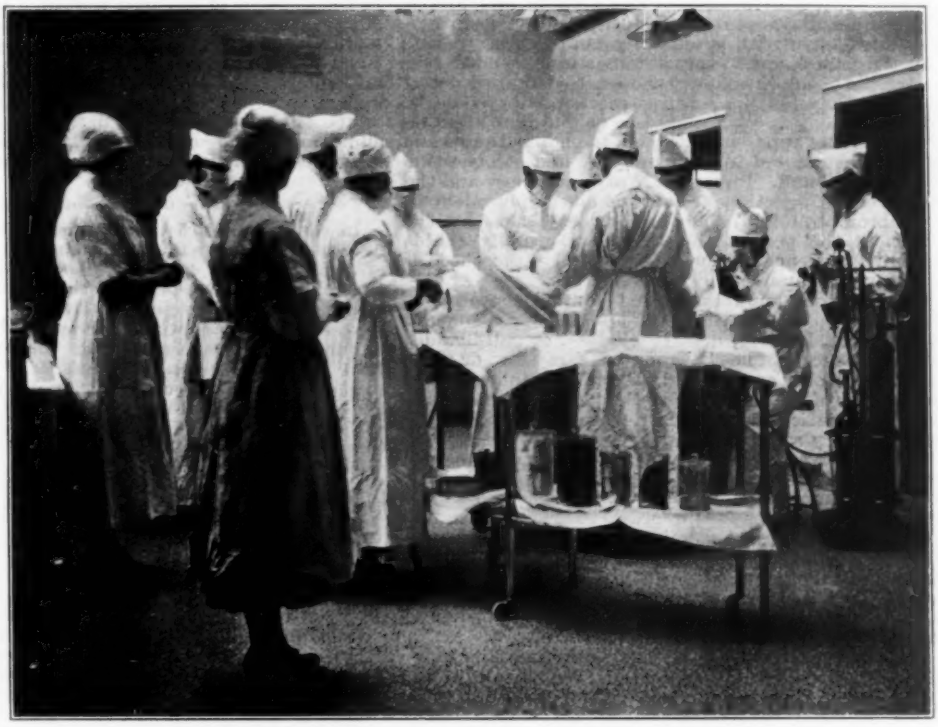
RADIOLOGY.

Another "milestone" in the progress of surgery between Hunter's day and ours is marked by the successive discoveries of X rays and radium.

The discovery of X rays by Wilhelm Roentgen (1845–1923), professor at Wurzburg, in 1895, was the commencement of a series of great advances in surgical diagnosis. At first the use of X rays in this direction was mainly confined to injuries to and diseases of the bones. When, however, the possibilities of this discovery were more appreciated and understood it

was found possible to extend the clinical use of X rays in diagnosis to other conditions. Thus, as regards the internal organs and viscera, especially portions of the alimentary canal, the existence of diseased conditions was readily demonstrated by the taking of a skiagram of the diseased, or presumed diseased, region and organ, after the administration by the mouth or the rectum of barium sulphate or bismuth nitrate. Thus the diagnosis of ulcers and neoplastic growths of the stomach, duodenum, narrowings in different portions of the alimentary canal, such as occurs in carcinoma of the œsophagus, or carcinoma of different portions of the alimentary canal, especially the lower portion of the large intestine above the rectum, was made possible. The determination of the position of deep-seated fistulous conditions between the viscera has also been made possible. As an example I saw demonstrated recently by this method a fistulous track between the surface of the body in the lower lumbar region and the lumen of the second portion of the duodenum.

FIG. 8.



A modern operation in course of performance: general arrangements.

FIG. 9.

An operation under modern aseptic methods: gastro-enterostomy.

The value of X rays in connexion with the diagnosis and treatment of disease has, in many cases and especially by the laity, been much exaggerated. To the practising clinician X rays, when intelligently and scientifically used, as we all know, can be of enormous advantage. They are of great value in the detection and localisation of different forms of calculi, especially those in the ureters and kidney. One of the later developments of the use of X rays in diagnosis is the investigation of the ureters and pelvis of the kidney by what is known as "ureterography" and "pyelo-

graphy." By these means of investigation many obscure cases of disease in the kidneys and ureters have been diagnosed satisfactorily and subsequently operated upon with great prospects of cure. Calculi in the gall-bladder for a long time evaded the attempts of the X ray practitioners to definitely detect them. Occasionally, when suspected, they could be demonstrated on an X ray plate or film, but often no evidence was apparent, although the clinical signs and symptoms pointed to their presence and at operation they were found. Improved X ray machinery and the intravenous injection of tetraiodophenolphthalein or tetrabromphenolphthalein and its excretion by the liver, at the present time, however, usually enable definite evidence to be found of the presence of cholecystitis and calculi in these cases.

As everyone knows, a patient is much more ready to submit to an operation for removal of a calculus in the ureters, kidneys, urinary bladder, or gall-bladder if its presence can be shown on an X ray film or plate than if it is only assumed. In a similar manner X rays have been of use in detecting the presence of stone in the pancreatic duct or deep-seated calculi in the submaxillary salivary gland.

One disadvantage of the use of X rays in diagnosis of surgical affections at the present time is the high technical knowledge which it is requisite for the investigator to possess in order to get satisfactory results in all classes of examination. X ray machinery, however, has been much improved and simplified of late and the principles of its use more understood, so that ordinary investigations can now be carried out more or less successfully by technical assistants.

During the Great War X ray diagnosis was increasingly made use of in the detection and localisation of injuries to bones and the presence of bullets and other metallic substances which had entered the bodies of wounded soldiers.

Following the discovery of X rays by Roentgen, Monsieur and Madame Curie in 1898 discovered radium in pitch-blend derived from mines in Joachimstal in Bohemia (now Czecho-Slovakia). The salts of this metal were found to possess very marked radio-active qualities and have been used, especially of recent years, in the treatment of various diseases and particularly in forms of new growth. There is no doubt that certain types of both sarcoma and carcinoma are very sensitive to the action of radium, and a number of patients have apparently been cured by the use of the salts of this metal. Radium has been applied in various ways, but in the treatment of disease the best results have been obtained either by the implantation of radium needles or radium seeds in the margins of diseased tissues. As in the case of X rays, the exact value of radium in the treatment of malignant disease cannot yet be determined. Unfortunately, a large supply of radium is very expensive and difficult to obtain. The indications, however, appear to be that if an increased quantity of radium or its salts can be obtained and made available for clinical use, then considerably improved results in the treatment of malignant disease may be made possible.

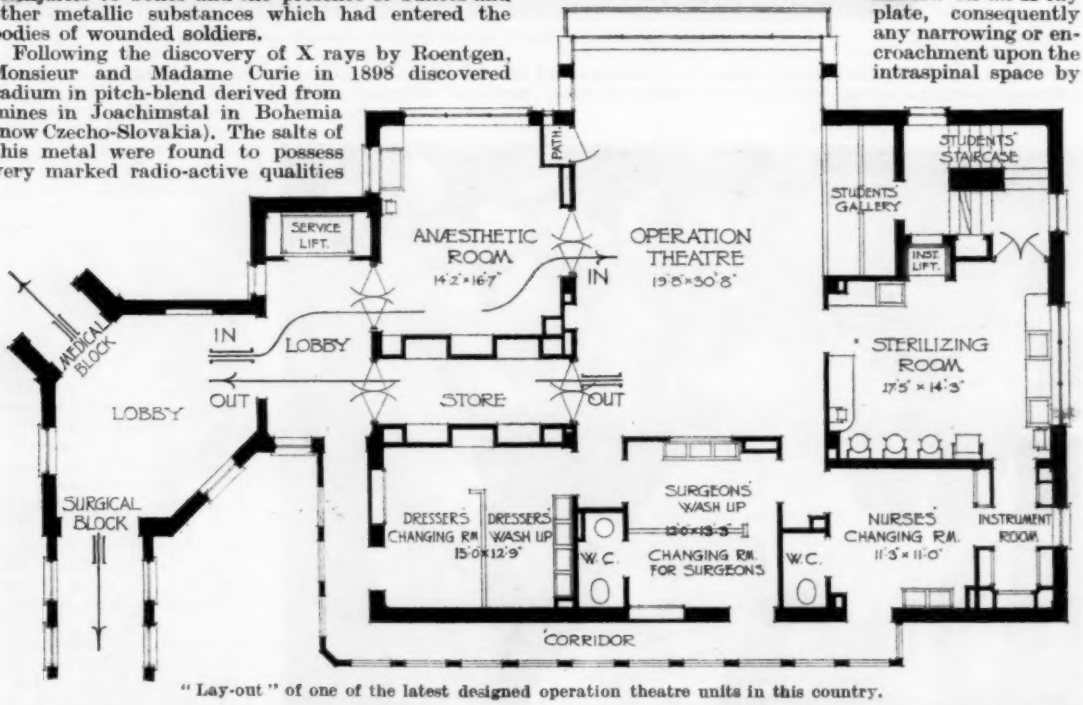
Cranium and Cranial Surgery.

In connexion with the surgery of the cranium and its contents Broca's investigations into the localisation of function and especially his localisation of the centre of articulate speech in the left frontal convolution enabled him to perform the first fixed operation for cerebral abscess, which was assisted by localisation of function in connexion with "motor aphasia," in 1861, and since then a large number of researches into the localisation of cerebral functions has enabled neurologists and neuropathologists to localise the site of a considerable number of intracranial growths. Quite a considerable proportion of the advances in cerebral and spinal surgery has been due to two Fellows of this College—Victor Horsley (1857–1916) and William MacEwen (1848–1924), now deceased.

Localisation of Spinal Cord Tumours.

Use of Lipiodol.—Recently much assistance has been obtained in the exact localisation of a tumour within the spinal canal by the injection of lipiodol into the spinal canal and subsequent examination with X rays. The lipiodol shows as an opaque shadow on an X ray plate, consequently any narrowing or encroachment upon the intraspinal space by a tumour becomes evident. Similarly injection of lipiodol into the trachea, bronchi, and lungs, and subsequent examination by X rays has enabled the clinician to positively demonstrate on plate or film the extent and nature of abnormal intrathoracic conditions.

FIG. 10.



"Lay-out" of one of the latest designed operation theatre units in this country.

SPECIALISATION.

The numerous methods—chemical and physical—available to the clinician and the pathologist for the

investigation of patients suffering from surgical affections are so varied that at the present time it is not usually possible for one diagnostician to make all the investigations which are necessary in the examination of an individual patient. Thus in the practice of surgery in the present day we have skilled specialists in many branches, such as histology, biochemistry, cytology, bacteriology, and radiology, and further, in the use of special instruments, such as the laryngoscope, ophthalmoscope, cystoscope, sigmoidoscope, and bronchoscope. This division of activities has led to the establishment of specialist practitioners, many of whom limit their activities, diagnostic and otherwise, to one particular organ.

From the point of view of progress in surgery there is no doubt that this specialisation, both in diagnosis and treatment, has been a very considerable advantage. This trend to specialisation in both diagnosis and treatment has become so marked that at the present time there is a tendency for specialist-practitioners to work in teams, each one of a team taking specialised portions of either investigation or treatment.

In practice this method of examination and treatment has been found especially feasible in connexion with hospitals to which medical schools are attached. The formation of private clinics for the diagnosis and treatment on these lines for the non-charity patient has not been easy in this country. Many developments, however, on these lines are now taking place which will be of great advantage to the successful practice of surgery in the future.

One great difficulty often arises in connexion with the progress in surgery as regards its practical application. This is the inborn desire of the Englishman to have all forms of medical and surgical treatment carried out in his own house. Fortunately public opinion is gradually being educated on this subject and there is an increasing tendency in educated members of the community, of desiring, when ill, to be treated in an institution built and equipped for the scientific investigation and treatment of disease.

Influence of Asepsis and Antisepsis on the Construction and Building of Surgical Hospitals and Operation Theatres.

The general adoption in surgical practice of the principles of asepsis and antisepsis was quickly followed by enormous improvements in the building and construction of surgical hospitals and operation theatres. In Hunter's day a small room, not specially built to fit it for the purpose, was generally made use of as an operation room. This practice of using any small and otherwise useless room for operations was continued until comparatively recently. In my own student days I well remember, in one of the large special hospitals in London, that the residents' sitting-room and dining-room were also used as the surgeon's operation and instrument rooms. The old method of erection of buildings was ill adapted for the practice of asepsis owing to the large number of angles, corners, crevices, wall and ceiling decorations, which formed collectors of dust, dirt, and associated micro-organisms.

Since the late eighties and early nineties enormous advances have been made in the construction of surgical wards and rooms used for surgical patients and also operation theatres. In the earlier days of the construction of the modern operation theatre considerable difficulty was experienced by architects and builders in providing absolutely smooth surfaces for floors, walls, and ceilings, which could be readily cleaned without being damaged or destroyed. At the present time the tendency in the construction of surgical operation theatres is to make them as simple as possible and to have all the sterilisation of equipment and instruments carried out by superheated steam or in some cases dry heat produced electrically in a room immediately adjoining the operation theatre.

FIG. 11.

Shows interesting examples of amputation knives from Hunter's day to ours. 1 and 2 = Curved amputation knives as used in Hunter's day. 3 and 4 = Amputation knives of period 1820. 5 and 6 = Amputation knives of present day.

[Copyright: Wellcome Historical Medical Museum.

In connexion with this subject the illustrations are of considerable interest, both as regards the operation room, operation table, and the equipment and personnel of the surgeon and his assistants. Figs. 4 and 5 illustrate operations being performed in the days of Hunter. Fig. 6 represents the arrangements for an operation in 1820. Fig. 7 represents an operation being performed in the early days of Listerian practice. In it can be seen the carbolic spray which was used for making the atmosphere in the region of the operation aseptic. Figs. 8 and 9 illustrate an operation being performed under modern aseptic methods.

As an illustration of the progress which has been made in ensuring surgical cleanliness and asepsis in an operation Fig. 10 gives the lay-out and design of one of the newest and most modern surgical operation theatre units in this country. The main point in connexion with this lay-out is the provision made for avoiding the entrance into the operation theatre of any individual or material which has not been rendered previously as aseptic as possible.

The progress of surgery, especially since the aseptic and antiseptic era, has been greatly assisted and rendered possible by improvements in the education and training of nurses. Without these improvements in the education and training of nurses it would be almost impossible to perform with success a large number of the major operations which are now regularly done in the practice of surgery.

Surgical Instruments.

Since Hunter's day there has been a gradual improvement in the size, shape, and finish of practically all surgical instruments. As illustrations of this, these are two instruments which I have taken from the case containing the Hunterian relics in our museum. The first one is a lithotomy knife used by Hunter. As you see it is a large unwieldy instrument of very coarse manufacture. This second one is a knife of a similar kind which may be used at the present time. The second is a flexible metallic catheter as invented and used by Hunter. Since that period the structure and manufacture of flexible catheters has been much improved, especially since the utilisation of rubber and its products.

Fig. 11 shows interesting examples of amputation knives from Hunter's day to ours. The specimen I show you was one in use in the days of Hunter. This form of knife continued to be used until the days of Anthony Carlisle, a former President of this College, who introduced the straight knife and discarded the curved and heavy form of knife. Since then the tendency has been for an amputation knife to become smaller and smaller until at the present day it is usual to use a short knife such as shown in the figure.

War Surgery.

The great progress in war surgery during the Great War was due to the utilisation, in all aspects, of previous discoveries in connexion with (*a*) immunity and prevention, (*b*) anæsthesia, (*c*) asepsis and antisepsis, and (*d*) X rays. The utilisation of these discoveries during the prolonged hostilities enabled operations of every magnitude to be carried out in advanced stations and hospitals within close distance of the firing-line. In addition the improvements in transport, motor and otherwise, contributed greatly to this progress.

Two points which I have already referred to in connexion with the progress of surgery had great bearing on the surgery of war. These were preventive typhoid inoculation and the use of antitetanic serum. Another important practice developed during the war in connexion with the treatment of recent contaminated wounds, the margins of which were lacerated or contused, was primary excision of all contaminated and contused tissues followed by immediate or delayed suture. By the practice of these methods and the advantages of improved transport, it was found possible during the war to treat patients at the general military hospitals in London within 24 hours after the wounds had been received. In a number of cases of wounds the margins of which had been excised, the cavity was packed with gauze soaked in flavine, or after amputation the stumps were treated in a similar way.

A further improvement in war surgery was the recognition of the fact that in many cases of suppurating wounds or badly lacerated limbs in which an amputation had to be performed, the wounds could be left open and treated by the Carrell-Dakin irrigation method. Free exudation and associated irrigation enabled the wounded surfaces to become clean and delayed suture of the wound could be carried out afterwards. As a result of the treatment of war wounds on improved biochemical and biophysical principles the mortality from gun-shot wounds and injuries was enormously decreased.

Radiology and Treatment of Disease.

As a further development of the application of radiology—X rays and radium—many diseases have been submitted to treatment by both X rays and radium for their cure. For example, "rodent ulcer" or basal-celled carcinoma, is thought by many to be amenable to cure when treated by the application of X rays. Other diseases have also been treated radiologically, especially some forms of new growth. In certain cases good results have been obtained, but at the present time it is difficult to dogmatise what is the true and permanent value of X rays and radium in the treatment and cure of disease, especially malignant disease.

Conclusion.

From the short account which I have been able to give you of the progress of surgery from Hunter's day to ours, it will be seen that the actual technique employed in the performance of surgical operations and the results which can be obtained thereby have reached a very high stage of perfection. It does not appear to me that we can expect in the future such great progress to be made in the details of the performance of operations themselves and the amelioration of the discomforts directly resulting therefrom. In my opinion the main lines of advance of surgery in the future will be along biochemical and biophysical lines, both as regards diagnosis and treatment. If this assumption be correct it is essential that the medical student and the medical practitioner of the future should pay increased attention to all biochemical and biophysical problems—both in normal and diseased conditions.

Owing to the length of the curriculum and the multiplicity of subjects which the student of medicine of the present day has to pass through, there is a tendency for parts of the curriculum to be forgotten after the examination in it has been passed. Consequently the application of physiology in the investigation of disease is too often neglected and a student thereby is encouraged to acquire surgical knowledge—especially diagnosis—in a somewhat empirical manner. At the present time, however, there is a tendency in every modern school of medicine to give courses of "applied physiology and applied anatomy" during the later and clinical part of a student's educational career.

A NOTE ON
JOHN HUNTER'S CARDIAC INFARCT.

By JOHN A. RYLE, M.D., F.R.C.P. Lond.,
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In a recent communication to THE LANCET Dr. J. Parkinson and Dr. D. Evan Bedford have reported their experience and reviewed the literature of cardiac infarction and coronary thrombosis.[1] By their careful and extensive survey of cases and pathological material they have amplified the work of other observers, establishing and defining the syndrome which characterises this grave vascular accident, and indicating its relationships with angina

[1] THE LANCET, Jan. 7th, 1928, p. 4.

pectoris. They have shown that the status anginosus generally proclaims a coronary occlusion and that, notwithstanding the gravity of the event and its high immediate mortality, survival is common and a return to a life of modified or even full activity not impossible. From the descriptions of anginal cases left to us by the great masters, including Latham, Osler, Clifford Allbutt, and Mackenzie, it is now possible to select indubitable examples of seizures due to this cause. It is noteworthy that Heberden himself mentioned a few cases in which the pain persisted for hours or days.

My own interest in the subject was first stirred on reading a paper by J. W. McNee.[2] A natural curiosity concerning the history of a clinical syndrome which has only lately been accorded accurate portraiture, but which must in fact be at least as old as arterial disease, has since been quickened by a personal experience of several cases and by a recent discussion at the Medical Section of the Royal Society of Medicine (Jan. 24th, 1928). Recollecting the minuteness of the clinical detail in Sir Everard Home's account of Hunter's illnesses I have carefully re-examined the narrative of these and particularly of his alarming vascular crises. The story of Hunter's angina, of his foreboding that his death might be precipitated by anyone who should anger him, and of his actual demise in such a circumstance, is common property, and has found its place in the text-books and been recounted to generations of students. It is not, I believe, so widely recognised that his very first seizure was, in all probability, due to a coronary thrombosis; that he survived it for 20 years; and that, on examination after death, two fibrotic scars were found in the wall of his heart.

The descriptions which follow are drawn from Joseph Adams's "Memoirs of the Life and Doctrines of the late John Hunter, Esq." (London, 1817), in which the author includes full quotations from Sir Everard Home's Life. Sir Everard Home's account was based on observations of his symptoms noted by Hunter himself at the time of their occurrence or dictated to Sir Everard Home when he was too ill to write. I have italicised some of the more apposite passages.

"In the spring of 1769, in his forty-first year, he had a regular fit of the gout, which returned the three following springs, but not in the fourth; and in the spring of 1773, having met with something which very forcible affected his mind, he was attacked, at ten o'clock in the forenoon, with a pain in the stomach, about the pylorus: it was the sensation peculiar to those parts, and became so violent, that he tried change of position to procure ease; he sat down, then walked, laid himself down on the carpet, then upon chairs, but could find no relief. He took a spoonful of tincture of rhubarb with 30 drops of laudanum, without the smallest benefit. While he was walking about the room, he cast his eyes on the looking-glass, and observed his countenance to be pale, his lips white, giving the appearance of a dead man: this alarmed him, and led him to feel for his pulse; but he found none in either arm. He now thought his complaint serious. Several physicians of his acquaintance were then sent for: Dr. William Hunter, Sir George Baker, Dr. Huck Saunders, and Sir William Fordyce, all came, but could find no pulse; the pain still continued, and he found himself at times not breathing. Being afraid of death soon taking place if he did not breathe, he produced the voluntary act of breathing, by working his lungs by the power of the will; the sensitive principle, with all its effects on the machine, not being in the least affected by the complaint. In this state he continued for three quarters of an hour, in which time frequent attempts were made to feel the pulse, but in vain; however, at last, the pain lessened, and the pulse returned, although at first but faintly, and the involuntary breathing began to take place. While in this state, he took Madeira, brandy, ginger, etc., but did not believe them of any service, as the return of health was very gradual; in two hours he was perfectly recovered."

Hunter was aged 45 at this time. The restlessness which he showed in the attack is now known, in contradistinction to the rigid immobility of ordinary angina, to be a not uncommon feature of coronary thrombosis. The reference of pain to the epigastrium is also a recognised feature and may sometimes lead to a faulty diagnosis of acute abdominal disease. Writing a hundred years ago Joseph Adams was sage enough to argue, and in opposition to Hunter's own idea, that, although the pain was apparently in the stomach, the actual seat of it was in the heart.

"That the disease was in the heart can now admit of no doubt: the cessation of the pulse is what might be expected from violent inflammation, as will be hereafter explained; *but the strongest proof that the heart at that time suffered an alteration in its structure, the effect of inflammation, is, that for the remainder of his life the patient suffered all the effects of angina pectoris. . . .*"

In 1776 Hunter had a serious illness in which vertigo and sickness played a prominent part. In 1785 he had another serious illness.

"About the beginning of April, 1785, (Sir Everard Home informs us) he was attacked with a spasmodic complaint, which at first was slight, but became afterwards very violent, and terminated in a fit of the gout in the ball of the great toe; this, like his other attacks, was brought on by anxiety of mind. The first symptom was a sensation of the muscles of the nose being in action; but whether they really were, or not, he was never able to determine. This sensation returned at intervals for about a fortnight, attended with an unpleasant sensation in the left side of the face, lower jaw, and throat, which seemed to extend into the head on that side, and down the left arm, as low as the ball of the thumb, where it terminated all at once: these sensations were not constant, but returned at irregular times; they became soon more violent, attacking the head, face, and both sides of the lower jaw, giving the idea that the face was swelled, particularly the cheeks, and sometimes slightly affected the right arm. After they had continued for a fortnight, they extended to the sternum, producing the same disagreeable sensations there, and giving the feel of the sternum being drawn backwards toward the spine, as well as that of oppression in breathing, although the action of breathing was attended with no real difficulty: at these times the heart seemed to miss a stroke; and upon feeling the pulse, the artery was very much contracted, often hardly to be felt, and every now and then the pulse was entirely stopt. He was afterwards attacked with a pain in the back, about that part where the œsophagus passes through the diaphragm, the sensation being that of something scalding hot passing down the œsophagus. He was next seized with a pain in the region of the heart itself; and last of all, with a sensation in the left side, nearly in the seat of the great end of the stomach, attended with considerable eructations of wind from that viscus: these seemed to be rather spasmodic than a simple discharge of wind, a kind of mixture of hiccough and eructation, which last symptoms did not accompany the former, but came on by themselves. In every attack there was a raw sore feel, as if the fauces were excoriated. All these succeeding symptoms (those in the stomach and nose only excepted) were in addition to the first, for every attack began with the first symptoms. The complaint appeared to be in the vascular system, for the larger arteries were sensibly contracted, and sore to the touch, as far as they could be touched, principally in the left arm; the urine at those times was in general very pale.

These symptoms increased in violence at every return, and the attack which was the most violent, came on one morning about the end of April, and lasted about two hours. It began as the others had done, but having continued about an hour, the pain became excruciating at the apex of the heart; the throat was so sore as not to allow of an attempt to swallow any thing, and the left arm could not bear to be touched, the least pressure upon it giving pain; the sensation at the apex of the heart was that of burning or scorching, which, by its violence, quite exhausted him, and he sunk into a swoon or doze, which lasted about ten minutes, after which he started up, without the least recollection of what had passed, or of his preceding illness. I was with him during the whole of this attack, and never saw any thing equal to the agonies he suffered; and when he fainted away, I thought him dead, as the pain did not seem to abate, but to carry him off, having first previously exhausted him.

He then fell asleep for half an hour, and awoke with a confusion in his head, and a faint recollection of something like a delirium; this went off in a few days.

The affections above described were, in the beginning, readily brought on by exercise; and he even conceived, that if he had continued at rest, they would not have come on: but they at last seized him when lying in bed, and in his sleep, so as to awaken him. Affections of the mind also brought them on; but cooly thinking or reasoning did not appear to have that effect. While these complaints were upon him, his face was pale, and had a contracted appearance, making him look thinner than ordinary; and after they went off, his colour returned, and his face recovered its natural appearance."

This description clearly refers to a further series of vascular storms of a critical kind. May they possibly

[2] Quarterly Journal of Medicine, 1925–26, xix., 44.

have accompanied a second coronary thrombosis? This illness laid him low from the beginning of April until the latter part of May, and ended with an attack of gout. After it he remained more than ever subject to the angina of effort or emotion.

In 1789 he suffered a loss of memory and more vertigo. Between 1791 and 1793 his anginal attacks became increasingly frequent and more prolonged, and arrived for lesser causes.

"On the 16th of October, 1793, when in his usual state of health, he went to St. George's Hospital, and meeting with some things which irritated his mind, and not being perfectly master of the circumstances, he withheld his sentiments; in which state of restraint he went into the next room, and turning round to Dr. Robinson, one of the physicians of the hospital, he gave a deep groan, and dropt down dead!"

The body was examined after death and the findings in regard to the heart were reported as follows:—

"The pericardium was very unusually thickened, which did not allow it to collapse upon being opened; the quantity of water contained in it was scarcely more than is frequently met with, although it might probably exceed that which occurs in the most healthy state of these parts. The heart itself was very small, appearing too little for the cavity in which it lay, and did not give the idea of its being the effect of an unusual degree of contraction, but more of its having shrunk in its size. *Upon the under surface of the left auricle and ventricle, there were two spaces nearly an inch and half square, which were of a white colour, with an opaque appearance, and entirely distinct from the general surface of the heart: these two spaces were covered by an exudation of coagulating lymph, which at some former period had been the result of inflammation there.* The muscular structure of the heart was paler and looser in its texture than the other muscles in the body. There were no coagula in any of its cavities. The coronary arteries had their branches which ramify through the substance of the heart in the state of bony tubes, which were with difficulty divided by the knife, and their transverse sections did not collapse, but remained open. . . . The semilunar valves of the aorta had lost their natural pliancy, the previous stage to becoming bone, and in several spots there were evident ossifications. The aorta, immediately beyond the semilunar valves, had its cavity larger than usual, putting on the appearance of an incipient aneurism: this unusual dilatation extended for some way along the ascending aorta, but did not reach so far as the common trunk of the axillary and carotid artery. The increase of capacity of the artery might be about one-third of its natural area; and the internal membrane of this part had lost entirely the natural polish, and was studded over with opaque white spots, raised higher than the general surface. . . ."

To this account Joseph Adams added the following commentary:—

"The opake spot in the heart was probably formed during the severe illness of 1773, at which time the heart refused to act, the invariable consequence of high inflammation in a muscular part. Such is the immediate effect during the severe paroxysm of inflammation in the heart. The consequences for the remainder of life must depend on the alteration, if any, which had taken place from the inflammation. Sometimes the heart never recovers, and the circulation is carried on feebly till the patient expires, without any external cause: sometimes the heart is dilated by the afflux of blood on which it is at first unable to contract, and after a time contracts with irregularity, from an incapacity to acquire its original form. In Mr. Hunter's case, from an alteration in its texture, its actions became irregular; and consequently the action of the lungs. This constitutes angina pectoris, with which, Sir Everard Home informs us, Mr. Hunter was afflicted for the last 20 years of his life, the exact period of this illness."

If it be accepted—and it is difficult to offer any alternative explanation—that Hunter's first seizure was due to a cardiac infarction, it is surely a most remarkable feature of his case that he should not only have survived it for 20 years, but that for the greater part of that time he should have been able to devote himself to labours which continued to add lustre to his earlier fame. This chapter of Hunter's life which is concerned with his illnesses affords us a glimpse of the great strength of will and the scientific interest with which he constantly met them, and only serves to increase our admiration of the man. I do not know whether any parallel case can be quoted, but for the benefit of the physician faced with the delicate task of prognosis in this grave and disturbing malady it is at least gratifying to record that it may sometimes be consistent with long years of useful activity.

An Address
ON
VOLUNTARY HOSPITALS AND PUBLIC AUTHORITIES.*

BY SIR WILLIAM HAMER, M.D. CAMB., F.R.C.P. LOND.,
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THE conception that coördinated effort is needed for furthering the health interests of communities is a comparatively modern one. Simon, in his "English Sanitary Institutions," in tracing the rise and early progress of British preventive medicine, insisted that it was the development of "a larger sympathy of man with man" that really marked, more than a century and a half ago, the turning-point in the history of the human race. This growth of the "new humanity" was favoured

"by two separate and dissimilar (though often coöperating) influences, one dating from the second quarter of the eighteenth century and one dating from the fourth, the former expressly religious . . . the latter essentially an outcome of stimulated political reflection. . . . Throughout the centennium, 1738–1838, the tide of religious philanthropy was ever on the rise, ever gaining more and more social influence."

Then at the close of that period there came "a rush of final success," culminating first in the Act of 1834, which,

"through the good luck that Mr. Edwin Chadwick was made the secretary of the New Poor Board, gave occasion, a few years later, to a beginning of public sanitary inquiry in Great Britain";

and, secondly, in the Act, under which it first became possible to bring to light record of life and death in this country. Simon adds the significant note that, "while the interests of the public health were frequently under discussion in Parliament, the growth of unofficial knowledge and sympathy in relation to the movement was shown by the rise of voluntary associations." Later, Sir John pays tribute to the work done, from the beginning of the 'seventies onwards, by the Charity Organisation Society, in "strenuously endeavouring to educate the public towards a better economy of charitable resources." It is most intriguing, at the present juncture, to study the attempts made, in the third quarter of the last century, to substitute organised system for haphazard methods in dealing with the health of the community. We read in Simon's book of the determined fight, made by Lord Shaftesbury, Chadwick, Southwood Smith and others to make the General Board of Health a success, and of the opposition of the "interests," and we are reminded that there was an "interest" which in those early 'fifties had raised no voice—that "of the millions of population still under the free ravages of infectious disease." Chadwick bore the brunt of the attack; he was declared to have been "impatient" but, as Simon says, "patience under sufferings of one's own, and patience towards the sufferings of others, are not equal measures of magnanimity." Chadwick had knowledge, at first hand, of the human miseries which were accruing

"day by day under the almost universal prevalence of sanitary neglect; and the indignation, which he was entitled to feel at the spectacle of so much needless suffering, is a not ignoble excuse for such signs of over-eagerness as he may have shown."

Those two great friends of progress—the voluntary and official organisations—set to work with a will, and the results which have floated up, in the last century, would have surprised the pioneers. Dr. Farr's statement of 1857, that "the deaths of 17 persons per 1000 may be considered, in our present imperfect state, natural deaths," but that "this standard

* An address delivered on Feb. 13th at a meeting of the Charity Organisation Society.

cannot be applied to the large towns, which can never become so healthy as the country," is an interesting one, in view of the fact that the average death-rate in London, for the last seven years, has been 12·3. Even more remarkable is the reduction, since 1900, in infant mortality, which must, however, be regarded in the main as an outcome of the Education Act of 1870.

The successes gained obviously suggested that the humanitarian, sanitary or preventive idea, call it what you will, already so advantageously exploited in public health, must now be turned to use also in personal health, and plainly the attack had to be directed against the beginnings of disease. Hence, school medical work was undertaken nearly 20 years ago, maternity and child welfare work commenced a little later and has been in active operation since 1918, tuberculosis work began in 1911, and venereal disease clinics came into operation in 1916. The passing of the National Insurance Act and the establishment of the above-named public health services made it clear, as Lord Dawson told us at the time, that

> "the line of demarcation, between State medicine in a locality and domiciliary medicine, as represented by general practitioners, was no longer that between preventive and curative medicine";

and he and others set to work to devise plans "under which institutional and organised provision should lead off directly from private practice." And now, with the Ministry of Health proposals, a further great opportunity presents itself, and voluntary hospital committees for some time past have been actively engaged in considering how they can give help in realising the new ideals.

The Voluntary Hospital as a Consultative Centre.

In a presidential address at Norwich on the Function of the Voluntary Hospital in Relation to Public Health Services, Sir Arthur Stanley described how, "by giving of their best," the medical profession had

> "altered the character of the voluntary hospitals, until from being merely dispensers of charity they have become the main centres of training and research . . . they have not set their helm by any fixed star, nor steered their course by any official chart," and "this was not so much of importance while the State in respect of its public health responsibilities was content to be driven by circumstances rather than guided by principles. It is obvious, however, that, when one of the factors in this situation underwent a change, the other could not fail to be affected." He adds: "It will be appreciated at once that all the essential elements which are constituent parts of a complete public health service on behalf of the sick, are in greater or less degree in existence; they do not call for creation, they call for readjustment, correlation, and development. This is obviously the object for which we should all strive, and in the attainment of this it is obvious that the voluntary hospitals can and must play an important part."

Sir Arthur Stanley then refers to the questions upon which the Minister of Health asked, a year ago, for suggestions. He points out that complete uniformity of practice may not be attainable, but he thinks it desirable to consider to what extent it might be wise to formulate general principles for guidance. A principle which must, he says, be kept in view is that of "establishing the voluntary hospitals in the position which they have as yet only partially attained—namely, that of consultative centres." The Minister raised the question of the possibility of allocating categories of cases to one or other type of hospital. As things stand, some types are already absent, even from the largest voluntary hospitals—e.g., maternity cases, infectious fevers, mental cases, and other specialised types; and reasonable discrimination might clearly continue to be exercised, without any prejudice to teaching functions. The all-important point is, that sight must not be lost of the great advantages to all concerned to be gained from the careful framing, by local consultative committees on which the representatives of the voluntary hospitals and the public authorities would confer together, of schemes for giving effect to the eminently practical objects adumbrated in the Minister's letter.

Two examples may be cited of things already accomplished by coördinated effort on the part of health workers. The London mortality from measles up to the fifth year of age per 1000 born has in the last five years, as compared with the preceding quinquennium, declined more than 25 per cent.; this notable result is clearly ascribable to coöperation between the Ministry, the Metropolitan Asylums Board, the county, city, and borough councils, and medical practitioners. Again, having regard to the advanced state of evolution of the voluntary hospitals and the social services already rendered by them through their almoners' departments, it was recognised at the outset that the London school medical service must be developed on similar lines. It was therefore devised to work as a hospital and general practitioners' service, coördinating the activities of doctors and social workers, and linking them up with the general education service of the Council, and not as a newly constituted ad hoc municipal service. An important outcome of this decision has been that the wishes of the hospitals, as expressed by Sir William Collins,[1] were substantially met; moreover, general practitioners have, during the last 18 or 20 years, had the opportunity of becoming keenly interested in school medical work. It is confidently hoped, therefore, that the precedents thus established may help in securing, in further developments, that coöperation between unofficial and official activities which is so much to be desired.

All those who have studied the question of medical out-relief have been impressed with difficulties arising from application of differing methods of practice in similar and closely adjoining areas. The problem has in the past been mainly concerned with curative treatment: it now becomes more complex, for not only those who are, or believe themselves to be, seriously ill, are in question; there is the clamant need of endeavouring to withstand the beginnings of disease. Dr. Gee used to say that "in medicine the first thing is diagnosis, and the second thing is diagnosis, and the third thing is diagnosis." Appreciation of the truth of this led the guardians in North Lambeth many years ago to place the entire poor-law medical service, institutional and out-relief, under unified control. It is not only the patients claiming hospital treatment who make up the sum total of those for whom such treatment may be deemed desirable. McVail[2] gave a number of typical instances of "cases which ought to be removed" and "cases which ought not to be removed." Already, in 1909, he had noted that—

> "in the cities persons were being attracted to institutions who were able to maintain themselves." He added, "repression of those who do not need and so do not deserve . . . will be even a more difficult duty than attraction of the needy and deserving who at present refuse to come in."

Now that the importance of exercising discrimination, as between hospital and home treatment, is seen to be of more vital moment than ever before (from the point of view of the community as well as of the patient), the experience gained in Lambeth is especially important.

The results already achieved by the educated mother who has been through the schools, when compared with those aforetime attained by the illiterate mother, of the out-patient rooms of half a century ago, represent a net gain of 60 per cent.—i.e., a reduction of infant mortality from about 165 per 1000 born to about 65 per 1000 born. Thought and care, such as have been devoted in the last 30 or 40 years to promoting the welfare, first of school-children and then later of infants, should now be further directed to the provision of carefully coördinated medical help, for all ages and both sexes, on preventive and curative lines. Such an

[1] Hospitals and the State, a paper read in 1912 at Birmingham, at the Third Annual Conference of the British Hospitals Association.

[2] Appendix XIV., Report of Royal Commission, 1909, pp. 113–116 and 156.

enterprise must be a coördinated undertaking of all available voluntary and official organisations in each locality; there is work and enough for all; competition, therefore, between voluntary and official institutions can, and should, be avoided. Each voluntary hospital in London, as consultative and teaching centre, should form a nucleus functioning in close coöperation with associated health agencies. In the living organism formed by aggregation of such units there must be no schism of foot against hand, or of ear against eye, "each member should have the same care, one for another." Governed not so much by binding covenants as by the inspiration of a common purpose, such an organisation would speedily bring about a fall in death and sickness rates, and a rise in efficiency and working capacity that would open the eyes of the statisticians.

TREATMENT OF BURNS BY TANNIC ACID.

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BURNS are most worrying and unsatisfactory lesions, both in hospital and in private practice. The extreme prostration associated with the initial stage, the developing toxæmia, the local condition, and the end-result, all in turn give cause for serious thought and consideration. The mortality-rate is still very high. Woodward and Drummond [1] find a rate of 54 per cent. for burns and a rate of 25 per cent. for scalds. Fraser [2] groups them together at 38·7 per cent. in children of 10 years and under. Improved technique and progress in medicine have helped to reduce this figure, but it is still very alarming.

Avoidance of Toxæmia.

The treatment for primary shock is fairly uniform. The uses of the electric cage, transfusions, and infusions, and drug treatment have been well discussed in modern text-books. It is in the treatment of the local condition that methods vary considerably. If a sound and simple means of preventing the toxæmia which follows the burn could be found a great step in the right direction would have been taken and a happier outlook could be entertained. About 60 per cent. of the deaths occur, it is stated, from shock within the first 48 hours. Toxæmia should be included as an early factor, for it is known to be active within this time. Robertson and Boyd [3] found it within eight hours in their experiments on animals.

There is one method which efficiently combats the onset of toxæmia, but which is little used in this country. That is the use of tannic acid, first advocated by Davidson,[4] of the Henry Ford Hospital, Chicago, in 1925. Aqueous solutions, in a strength of about 2 per cent., applied to a burned surface for 24–48 hours produce a coagulum containing the degenerated and broken-down tissues. The surface is actually tanned. As the absorption of the toxins is prevented by precipitation the toxæmia does not develop. That the constitutional reaction following the burn is due to the absorption of toxins is generally admitted. Many interesting observations have been made to support this conclusion. Pfeiffer [5] isolated the products of protein decomposition in burns and grouped them as neurotoxic and necrotoxic. Post-mortem appearances in burns were found to be comparable with the changes seen in other cases where a high degree of infection had been present, as in septicæmia. Markusfeld and Steinheus [6] showed that, if the blood-supply to the burned area was cut off, the usual constitutional reaction did not take place. Vogt,[3] by performing parabiosis between two animals and burning one, found that both were equally affected, though not so severely as under ordinary circumstances. If they were separated within 12 hours the unburned animal exhibited only a slight degree of toxæmia. Vogt, Robertson, and Boyd, and others found that the toxæmia was only of a mild degree if the injured tissues were removed soon after the accident and the wound treated aseptically. The radical treatment of burns would be to remove all the affected tissues, as their presence is the cause of the toxæmia. In débridement the whole burn area is excised and a clean raw surface left behind. It is a sound procedure, but has its disadvantages. If thoroughly carried out it means a long anæsthetic at a critical time, the discarding of islands of epithelial tissue, and great risk of subsequent infection, besides a painful after-treatment and the necessity for skin-grafting. In severe cases débridement could not be attempted in the first instance, but temporary measures would have to be employed until the patient's condition justified the risk of an anæsthetic. Exsanguination transfusion as an adjunct has given excellent results where delay has resulted in the development of toxæmia.

Other methods aim at the control of the formation and absorption of toxic products and the prevention of sepsis. Picric acid is still widely used in this country. It precipitates proteins to a certain extent and has weak antiseptic properties. Thierry and other French surgeons first advocated its use as a dressing. That its precipitating properties are practically negligible is well illustrated by the results obtained with it. Paraffin preparations are also employed to a great extent. Their usefulness is questionable if sepsis is present, or if the area has not been thoroughly cleansed beforehand. Absolute alcohol and full exposure with the application of a drying powder have been employed with the object of drying up the surface and thus impeding the formation of the autolytic products and lessening the risk of sepsis. The treatment is difficult to carry out satisfactorily.

Burns Successfully Treated with Tannic Acid.

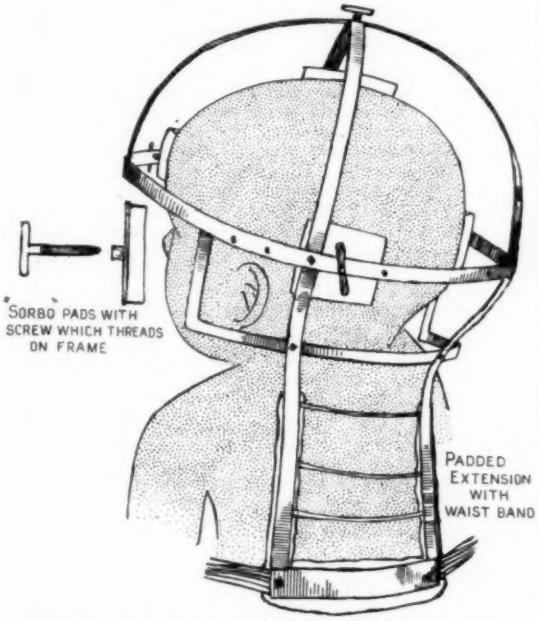
The use of tannic acid simplifies the treatment to a great extent. The application is soothing and quickly relieves pain. The coagulum forms a hard protective covering for the tissues beneath and the whole area is perfectly dry, so the loss of body fluids is minimised. Scar formation is lessened, owing to the absence of sepsis, and the wounds heal quickly. Above all the toxæmia is controlled, and more efficiently the earlier the tannic acid is applied. Davidson's technique was as follows. The patient having been given a sedative, sterile gauze pads were bandaged over the burn and this dressing soaked in 2·5 per cent. aqueous solution of freshly prepared tannic acid. Within 24 to 48 hours the tissues were stained a light brown colour. The dressing was then removed and the whole area exposed freely to the air.

The procedure in the following case of severe scalding was somewhat modified, but serves as an example of the effectiveness of tannic acid.

The patient, a girl aged 2, was admitted to the Great Ormond-street Hospital under the care of Mr. G. E. Waugh on the evening of Nov. 14th, 1926. She was suffering from severe shock. Vesication was present over the whole scalp, over the brow, and down in front of both ears to the neck. The whole of the neck posteriorly, the left shoulder, and the flexor surface of the left elbow-joint were similarly affected. A dirty rag dipped in olive oil had served as a dressing. She had had bronchitis recently and there were still signs of it in the chest. As the scald was very dirty it was decided to clean it up before applying the tannic acid. The next morning her condition had improved somewhat and she was given a light anæsthetic of ether and oxygen. The skin was first cleansed with ether soap and the loose tissues removed with a razor, the blade being held at right angles to the surface. It was then swabbed with absolute alcohol and strips of gauze, dipped in the freshly prepared 2 per cent. solution of tannic acid, were laid over the surface. The whole was then bound loosely in gauze bandages and the child taken back to the ward after ten minutes' anæsthetic. The dressing was kept moist by sprinkling it frequently with the solution.

A cage was devised whereby a considerable amount of the weight of the head and shoulders would be borne by a waist band, the rest by pads over the scalp. With this the protective coagulum could be exposed, the head kept at rest, and at the same time protected from trauma, as shown in the

illustration. The cage was applied on the third day. By the seventh day the coagulum was quite loose on the underlying surface. Pus was present at one point where a wound, as well as the scald, had previously been noticed. The coagulum was all removed on the eighth day, exposing a clean healing surface beneath, the infected area being quite localised. A dressing of ambrine with a thick covering of gauze was applied for 48 hours, the child resting on this "cushion" posteriorly. The whole was then fomented for 24 hours. After this it was treated with flavine and oil for a few days, and then this dressing was replaced by equal parts of sterile vaseline and ung. boracis. Thereafter the wound healed



Frame applied on removal of the tannic acid dressing.

uninterruptedly. The pressure of the pads on the cage had resulted in a deeper destruction of the underlying tissues and interference with the local regeneration, but the areas involved were small and the disadvantage was adequately counterbalanced by the efficient protection given to the rest of the scald. These areas healed quickly without sepsis when the cage was removed.

On the ninth day of the illness the child developed broncho-pneumonia and recovery seemed unlikely for the three following days. The wound, however, remained clean, except the part where pus had previously been present. She had fully recovered by then from a mild toxæmia which had been present during the first day or two. After these few days of anxiety the chest cleared quickly and the child was up and running about the ward ten days later. There is now a growth of fine fluffy hair over about two-thirds of the surface of the scalp.

There has been little written reference in this country to the use of tannic acid in the treatment of burns, yet it is simple and efficient and deserves a more generalised use. This child was so severely scalded that any hope of recovery seemed remote. Yet, in spite of the presence of bronchitis and the later development of broncho-pneumonia, she did recover, and tannic acid was probably the means of saving her life, by controlling the developing toxæmia before it had advanced very far. She took fluids well and never vomited, which emphasised the fact that toxæmia was at its minimum. The tannic acid dressing was soothing and the treatment easy to carry out. The loss of body fluids was minimised by the astringency of the tannic acid; the surface of the wound remained perfectly dry until the healing processes had loosened the coagulum. The removal of the coagulum at this stage seems advantageous, as it permits free examination of the area and the exposure of a moist granulating surface. The coagulum, when formed, protects the tissues from trauma and exposure. Again the after-treatment is simplified because sepsis is absent. Sepsis did occur at one point, but this was due to a wound, down to bone, caused by the original accident. It is interesting to note that this sepsis remained quite localised, as the tannin shut it off from the surrounding tissues. The wound healed quickly and scar formation was much less than was expected.

I am indebted to Mr. Waugh for his permission to publish the case.

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Clinical and Laboratory Notes.

ON THE PROTEAN NATURE OF "INFLUENZA."

A REPORT OF A MILD EPIDEMIC AT SEA.

By R. G. R. West, M.B., M.R.C.P. Lond., D.P.H., Nuneaton.

The interesting features of this epidemic were the varying symptomatology and the long latent period preceding the first case of typical influenza. Unfortunately no bacteriological investigation was possible, but it seems probable that someone, probably a member of the crew, had boarded the ship in London carrying an organism which produced epigastric pain and vomiting in Case 1; spasmodic cough in Cases 2, 3, and 4; bronchial catarrh in Case 5; acute tonsillitis in Case 7, and, after ten days' incubation, typical influenza in Case 8.

On August 7th, 1927, a liner left London with a crew of 100 and about half that complement of passengers, bound for South America. On the first night at sea one of the crew complained of acute epigastric pain with vomiting. He had had a sore-throat on the previous day. There was some catarrh of the pharynx, and the tonsils were swollen. The pulse-rate was 100 and the temperature 98·2° F. No abdominal signs were elicited. There was no headache and no myalgia, and the patient's condition improved on the following morning. He appeared to have recovered in two days' time (Case 1). Three men attended the ship's surgery during the following two days with spasmodic coughs (Cases 2, 3, and 4). Only one had a sore-throat. In the two subsequent days another two seamen reported sick. One had a mild bronchial catarrh (Case 5), the other slight pharyngitis with cough (Case 6).

During the following week occasional cases similar to the above, with a spasmodic dry cough as their most prominent feature, presented themselves at the rate of about one new case a day. No other illness was reported, and no man was off duty during this period. Eight days out from London an acute tonsillitis occurred in a man subject to such attacks (Case 7). It was not until the tenth day at sea that a case of typical influenza occurred among those on board. A quartermaster (Case 8) came to me looking thoroughly ill. He complained of severe frontal headache, pains in the neck, aching in the limbs, and sore-throat. His temperature was 102° F. and his pulse-rate 100. In three days he was well enough to return to duty, though the usual post-influenza lassitude remained for some days longer.

In the subsequent week two further cases of typical influenza occurred, one in an engineer and one in a scullion, occupations which would keep the two men quite out of contact with each other or with the quartermaster. In addition, several men from all departments attended for various degrees of cold in the head and cough. At the end of the week two cases occurred, one quite unlike any influenza I have seen, the other providing a link with the previous cases. The former was a man seized with spasmodic abdominal pain in bouts of half a minute's duration every five

to ten minutes. There was almost dysenteric diarrhœa and some collapse. The temperature was 98·4° F., the pulse-rate 110. The tongue was clean. The whole abdomen was at first so rigid as to suggest an abdominal emergency. There was tenderness in the right iliac fossa. In two days the man was well again, except for lassitude, which continued for several days. The second case was a boy of 19, who, after an initial rigor, collapsed one morning with diarrhœa and vomiting. This lasted a few hours only, and was followed by pain in the right side of the chest, with a small area of pleural friction. I saw him at this stage, when he looked thoroughly "toxic"; temperature, 100·1° F.; pulse-rate, 110; respirations, 20. No further signs developed except severe headaches on the second and third day. He informed me later that he had coughed up blood-stained sputum three times at the onset of his illness. He was in bed for five days, picked up again very slowly, and retained signs in the upper lobe of his right lung, which, together with his initial hæmoptysis, made me doubt the cause of his pleurisy. A month later, however, no added sounds could be detected in the lungs; slight impairment of percussion note alone remained. During the remaining week of the voyage acute catarrhal conditions of the upper respiratory tract were rife among the passengers, officers, and crew. Some were mere "colds" without fever. In some mild tonsillitis with a spasmodic feverish cold occurred. In two cases marked laryngitis was the chief feature. In several there was some huskiness. Sporadic cases of diarrhœa occurred here and there, but this is, of course, a common condition in ships traversing tropical waters.

The influenza cold ran its course through the ship, cases occurring at intervals during the 24 days of the outward voyage and during a subsequent fortnight in dock in Buenos Aires, and ended with one or two sore-throats, and one moderately severe laryngitis during the first few days of the homeward voyage. No one was affected twice, except a sailor with large ragged tonsils, who had two attacks of acute tonsillitis, with three weeks' interval between.

A CASE OF
SUBACUTE COMBINED SCLEROSIS OF THE CORD OF SUDDEN ONSET.

By S. C. H. Worseldine, M.R.C.S. Eng.,
CAPTAIN, INDIAN MEDICAL SERVICE.

THE following case seems worthy of record:—

A native driver in a mule corps, aged 25, was admitted to the Indian Military Hospital, Maymyo, suffering from loss of use of both legs, due, in his opinion, to witchcraft in his village in the Northern Punjab. He stated that he had never been in hospital before, and denied venereal disease. Seven days previously he had noticed weakness in his legs after the day's work; this weakness had steadily progressed until on the seventh morning he had been unable to stand up. No history of any pain or peripheral sensations could be elicited, nor any history of trauma.

Condition on Examination.—Patient appears to be a muscular, fit man. There is complete inability to move either leg from the hip downwards. Both legs are very spastic, and considerable force is required to flex the knees. Knee-jerks equal but exaggerated. Ankle-clonus present on both sides. Plantar reflex: Marked extensor bilaterally. Both eyes react to light and accommodation. Pupils equal and normal size. No nystagmus.

Sensations.—Pain: diminished over both legs, and an area extending from the pubes to 2 inches above the umbilicus. An area of hyperæsthesia from this to the xiphisternum. Sensations of touch, deep pressure, heat and cold lost to legs and area below umbilicus. Diminished sensation on rectal examination. No abnormality in urine, heart, and lungs, optic discs or retinæ. Spleen not palpable. Wassermann reaction negative. Cerebro-spinal fluid: not under pressure, clear, with normal cell count.

Blood examination: Total red cells, 2,340,000 per c.mm.; hæmoglobin, 80 per cent.; colour-index, 1·7. Poikilocytosis and anisocytosis present. Normoblasts and megaloblasts present; no myelocytes seen; 5 per cent. eosinophilia.

Diagnosis and Progress.—A diagnosis of subacute combined degeneration of the cord was made, although megaloblasts are rarely seen except in pernicious anæmia.

Two days after admission retention of urine developed. Fæces passed voluntarily. After a week in hospital the spasticity increased and there was loss of sensation to pain over the areas where it was previously diminished. A painless effusion of fluid appeared in the left knee-joint.

The case could not be followed up, as he was invalided to his home.

A NOTE ON THE
FALLACY OF THE COLOUR-INDEX.

By B. Derham, M.D., M.Ch. R.U.I.,
LATE MEDICAL OFFICER OF HEALTH FOR GARSTANG.

THE technique employed to ascertain the colour-index may be divided into two stages. The first part of the test identifies by means of a comparison of tints a standard aqueous hæmoglobin, the information being furnished in the form of percentages. The standard, of course, is fixed by the perpetuation of the tint which determines the identification; and when that standard is attained the blood is said to contain 100 per cent. hæmoglobin. The second part of the test is derived from an enumeration of the corpuscles actually present in 1 cubic millimetre of blood. Its utility depends upon the fact that this information can also be stated in the form of percentages, as follows.

It has been ascertained by careful observation that a cubic millimetre of healthy blood contains 5,000,000 red corpuscles, within fairly narrow limits of variation, which evidently must exist in a case of this kind, whatever standard be adopted. These 5,000,000 corpuscles will thus also represent 100 per cent. hæmoglobin; and it is evident that smaller numbers than 5,000,000 can also be correctly represented as percentages on that basis. But the percentage obtained in this manner can perform a different function and be treated as percentages of abstract number merely, without any special reference to hæmoglobin. Hence if the percentages of the standard hæmoglobin obtained by the colour test be divided by the percentages derived from the enumeration of the corpuscles, it is claimed that the quotient represents the hæmoglobin content of the individual cell.

The reasoning is plausible and seemingly convincing, yet there is an underlying fallacy which robs the colour-index of the greater part of its scientific value. The fallacy lies in the tacit assumption that in the course of the attenuation of the hæmoglobin of a corpuscle in anæmia the weight and volume of water introduced into the cell are precisely equal to the weight and volume of the hæmoglobin removed from the cell. This criticism is established by the fact that (taking an extreme case) the colour-index of 0·5 is interpreted to mean that one-half of the attenuated cell is normal hæmoglobin and the other half water. Now since we begin the process of attenuation with a normal hæmoglobin of colour-index unity, and end with an attenuated hæmoglobin of colour-index 0·5, and since no other factor than the addition of water intervenes, it is evident that the underlying assumption is that the water exactly replaces the hæmoglobin in the constitution of the cell, weight for weight and volume for volume—in other words, that the specific gravity of the water is identical with that of the hæmoglobin which it replaces in the cell.

This is the fundamental fallacy of the current theory of the colour-index, because the specific gravity of normal hæmoglobin is much greater than that of water. Therefore if we attentively follow the process of attenuation we will perceive that, weight for weight, the volume of water introduced into the cell would be much greater than the volume of hæmoglobin withdrawn from the cell, with the necessary consequence that there would be a very great and constantly accelerating augmentation of the total volume of the attenuating hæmoglobin far in excess of what is attributed to it by the current procedure.

An Illustration.

I will now select a concrete case to illustrate some of the consequences of the fallacy which I have indicated.

To begin with, a definition of hæmoglobin is required. A healthy blood corpuscle is an almost chemically pure colloidal

solution in water of what may be appropriately termed absolute hæmoglobin, with the addition of small quantities of other proteids, fats, &c., which constitute the stroma of the corpuscles. The composition is given as water, 56·5 parts; absolute hæmoglobin, 41·1 parts, and other proteids, fats, &c., 2·4 parts. The specific gravity is ascertained to be 1088. For purposes of calculation, I suggest that this should be called "standard aqueous hæmoglobin." Next with regard to the serum of the blood. The addition of the salts, proteids, &c., of the blood to water raises the specific gravity from unity to 1030, subject to slight variations. Almost the sole agent in raising the specific gravity of the blood above 1030 is the addition of standard aqueous hæmoglobin. A mixture of equal parts of standard aqueous hæmoglobin of specific gravity 1088 and serum of specific gravity 1030 represents the composition of healthy blood which possess a specific gravity of 1058 and contains 5,000,000 corpuscles in 1 cubic millimetre. Also we can easily calculate from the given data that the specific gravity of standard aqueous hæmoglobin diluted with half its volume of water (colour-index 0·5) is 1043.

Now for the illustration. A sample of blood is said to contain 50 per cent. or its equivalent of standard aqueous hæmoglobin possessing a colour-index of 0·5. With the aid of the data quoted we calculate that the specific gravity of blood containing 50 per cent. standard aqueous hæmoglobin or its equivalent is 1043. But we have just seen that 1043 is also the specific gravity of standard aqueous hæmoglobin diluted with one-half its volume of water. Then evidently that sample of blood must consist entirely of attenuated aqueous hæmoglobin of colour-index 0·5; and there would be no serum whatever. In other words, 10,000,000 corpuscles would be required to accommodate the attenuated hæmoglobin postulated by the data. I have discussed an extreme case in order better to demonstrate the fallacy of the colour-index; but this fallacy is present throughout the whole range of values, although in a minor degree in the earlier stages.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

COMBINED SECTIONS OF NEUROLOGY AND OPHTHALMOLOGY.

AT a combined meeting of these Sections held on Feb. 9th the chair was occupied by Prof. E. BRAMWELL, President of the Neurological Section, and a discussion on the

OCULAR COMPLICATIONS OF ENCEPHALITIS LETHARGICA

was opened by Dr. JAMES COLLIER, who said that the value of a discussion in this difficult region lay chiefly in the record of individual experiences. It was not enough for the nature of cases to be proved by autopsy, and, even so, when a gross lesion, such as a hæmorrhage, occurred in a rapidly fatal case of lethargic encephalitis it was likely that the true nature of the case might be missed. So far there had not been evolved any reliable clinical standard of the disease; its manifestations were very varied. A case well illustrating the difficulty was that of a man aged 56, who had had an attack of cerebral syphilis. He was seized with vomiting and complete anorexia lasting three weeks, during which time he was seen by six physicians, none of whom could find any nerve involvement. At the end of the fourth week, when he was dying, the picture was typical of lethargic encephalitis. Tumour of the brain with diplopia and sleepiness coming on rapidly might, in the absence of papillœdema and long-continued headache, simulate the disease under discussion, but prefrontal tumours did not cause the Parkinsonian syndrome. The latter might be simulated by lesions of any nature in the upper part of the brain stem. Severe generalised poliomyelitis might simulate encephalitis lethargica so exactly that they could only be differentiated by seeking for polymorphonuclear leucocytes in the cerebro-spinal fluid. Poliomyelitis did not, however, seem to cause the Parkinsonian syndrome. The inflammatory lesions of the disease might involve any part of the nervous mechanism subserving vision. In one typical case the patient had had complete left homonymous hemianopia when the coma had subsided, and it had remained four years. In another case the later clinical stage had been dominated by the syndrome of retrobulbar neuritis, and blindness had come on in a few hours, with loss of the light reflex. This had been replaced by a large central scotoma which had vanished in six weeks; there had been no papillœdema. Dr. Collier had only seen one patient with massive papillœdema, and in that case there had also been retinal hæmorrhages. Two kinds of ocular paralysis might be met in the disease: (1) That of any of the peripheral oculo-motor nerve-trunks, though rarely more than one in a patient. It was suggested to be due to a heaping-up of lymphocytic inflammation at the peripheral origin of the affected nerve. Recovery from this always took place in encephalitis lethargica. (2) There might be a nuclear ophthalmoplegia—i.e., an irregular ophthalmoplegia, seldom complete, affecting both eyes and leaving the optic axes unparallel. The more severe degrees left a measure of permanent paralysis. He had not seen any paralysis of conjugate movement with the axes remaining parallel and no diplopia, probably because the disease spared the white matter to a considerable extent. Nystagmus was not a common accompaniment. Herpes had been reported with every known form of encephalitis, and occasionally it was met with in encephalitis lethargica. He had not seen it in that association, but he had met a number of cases with unilateral total internal ophthalmoplegia, probably caused by a herpetic lesion of the ciliary ganglion; no other signs of the disease, however, had been detected.

The Ophthalmologist's Point of View.

Mr. F. A. WILLIAMSON-NOBLE dealt with the subject from the ophthalmological standpoint. He spoke of Dr. Perdrau's recent work, and gave an account of the experimental work of Grüter, Levaditi, and Harvier. Among the eye lesions occurring as a sequel to encephalitis lethargica were jerky eye movements, lack of blinking, blepharoclonus, partial ptosis, unequal pupils, deficient accommodation, deficient convergence, nystagmoid jerkings, diplopia with squint, lid retraction, oculo-gyric crises, sluggish reaction to light, Argyll Robertson pupil, squint, flickering of lids on tapping globella, and the blinking sign. One of the commonest was loss of the power of convergence, occurring in the Parkinsonian syndrome, usually associated with slight inequality of pupils and poor reaction to light. Another common symptom was a twitching of the lids on voluntary closure of the eyes. At Queen-square Hospital there had been several cases with oculo-gyral crises, as described by Wimmer. They consisted of spasmodic attacks of conjugate deviation of the eyeballs, mostly vertical, or vertical and to the side, and were usually seen during fatigue. In some patients there was a strong emotional factor. These crises might endure only a few seconds or might last hours. One patient had had a strong suicidal tendency during the attack. Looked at generally, he thought optic disc changes could be regarded as a very rare complication in this disease, and he agreed with MacNalty that in diagnosing a condition of encephalitis lethargica the absence of optic neuritis was a valuable negative sign.

Dr. A. FEILING referred to the oculo-gyric crises which had, he believed, only been noted in this country during the last two years; the phenomenon illustrated the fact that the sequelæ of the disease varied with successive epidemics. None of the cases with oculo-gyric crises that he had seen were older than 30 years. There was a sudden forcible movement of the eyeballs upwards. It was not entirely tonic; in his cases the eyeballs had shown rapid

clonic movements. The attacks lasted any time up to half an hour; but one patient had reported an attack lasting eight hours. One of his cases had had a spasmodic movement of convergence of the eyes. In none had he been able to control the attacks. He agreed that papillœdema was very uncommon in acute encephalitis lethargica, in fact when that symptom was present he regarded it as a point against the diagnosis of the disease. A permanent paralysis of any of the external muscles of the eye was comparatively uncommon, but affections of intrinsic ocular muscles were common, chiefly a deficient contraction of the pupil on accommodation. He had seen only one case of Argyll Robertson pupil in encephalitis lethargica; nor had he observed nystagmus as a sequel. Blepharoclonus was a common accompaniment of the post-encephalitic stage of Parkinsonism.

Discussion.

Dr. J. R. PERDRAU spoke of the small proportion of cases of encephalitis lethargica in the epidemic of 1919–21 which were correctly diagnosed, judging by the material which had been sent to him for investigation. In many the condition had been found to be tuberculous meningitis, and in others syphilis. In some instances in which the picture presented by the cerebro-spinal fluid seemed to be consistent with encephalitis, it had turned out to be cerebral tumour or some such condition. The supposed relationship of the virus of herpes to encephalitis lethargica was very important. It had now been isolated in that disease about ten times. Flexner was the chief protagonist of those who said that the virus of herpes could not have anything to do with encephalitis lethargica. Dr. Perdrau dealt with his arguments in detail, expressing the view that none of them was sound enough to invalidate the conclusion which they attacked.

Mr. MONTAGUE HINE gave particulars of the case of a young man, aged 24, whom he had first seen three and a half years ago. Two months before that date he had contracted a sudden febrile illness, associated with a rise of temperature, giddiness, pains in the eyes, and headache. Influenza had been diagnosed. A week later, as a complaint was made that the eyes had gone wrong, the doctor had thought that it might be encephalitis. When the speaker saw the patient he had had hemianopia on the left side, complete in the lower quadrant, partial in the upper. There had been little change since, but memory was much weakened, though the man had resumed his work. No Parkinsonism had developed.

Dr. W. J. ADIE considered that the diagnosis of encephalitis lethargica was made far more often than was justified. If papillœdema was found in a doubtful case he regarded it as a point against the diagnosis of encephalitis. The symptoms which Mr. Williamson-Noble had mentioned in his paper did occur, but were not distinctive nor of diagnostic value. The Argyll Robertson pupil was very rare and by itself was much more likely to mean syphilis. But there was one sign in the eyes which was very important in the diagnosis of encephalitis—namely, the lack of convergence and absence of reaction when the eyes converged to look at a near object.

Dr. GORDON HOLMES expressed his agreement with Mr. Williamson-Noble. In the acute stage of encephalitis lethargica palsies might be very irregular, but in nearly all cases there was a predominance of disturbance in convergence, often associated with complete fixation of the pupil when attempting to converge for accommodation; accommodation also was mostly paralysed. It was important, from the point of view of diagnosis, to remember the rarity, in encephalitis lethargica, of isolated complete ocular palsies. He quoted a case in a girl who, in 1920, when there was much encephalitis in London, came with slight sixth nerve and partial third nerve palsy, and a dilated inactive pupil. Eight years later, however, she had been found to have none of the sequelæ of the disease, but a recurrence of the palsies, this time associated with a lesion of the ophthalmic division of the fifth nerve. A common symptom at the present day was the reverse of the Argyll Robertson pupil, but he had seen the true Argyll Robertson pupil in people who were recovering from the disease. He agreed with those who said that most of the cases having papillœdema and congestion of the disc with swelling of its veins proved not to be encephalitis. He had found that if the patient suffering from oculo-gyric crises lay flat on the couch with the head hanging over the end the severity was greatly lessened; hence it seemed likely to be a disturbance of the reflex mechanism.

Mr. M. S. MAYOU referred to two cases, man and wife, who had suffered from encephalitis lethargica and in whom secondary optic atrophy had developed later. He believed optic neuritis had also been present.

Dr. WILFRED HARRIS said there had been a distinct change in the type of the ocular palsies seen in relation to the various epidemics of encephalitis lethargica prevalent in this country since 1918, when in numbers of cases there had been a marked double third nerve palsy. He had not seen that in association with the acute stage of the disease for some years. He agreed with Dr. Gordon Holmes that sometimes these patients showed a loss of the light reaction in the pupil. It was not surprising it should be a sequel of the disease seeing that any partial lesion of the third nerve might be followed by the Argyll Robertson pupil.

The CHAIRMAN said that in a disease which presented so many phases it was of the utmost importance to try to ascertain what manifestations could be regarded as diagnostically significant, especially when the patient came in a chronic stage. One of the most important of these, in his experience, was loss of the capacity to move the eyes upward. Another sign which had been present in several of his cases of the disease was an oscillation of the eyeballs. There was inability to move the eyes in a particular direction—it might be to one side or upwards—then the eyes oscillated in different directions for a second or two, and settled down. It resembled the quivering movement seen after dislocation of the lens. It could not be called a nystagmus. It might be a very valuable sign in the recognition of an early case of encephalitis lethargica whose nature was otherwise obscure.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

Exhibition of Cases and Specimens.

AT the annual meeting of this Society held in Manchester on Jan. 27th Dr. H. LEITH MURRAY (Liverpool) was elected President for the ensuing year.

Dr. K. V. BAILEY showed a specimen of

Multiple Uterine Fibroids with Torsion of One Pedicle.

The patient was aged 36 years. The menstrual history was normal. There was no menorrhagia or leucorrhœa, but there was definite congestive dysmenorrhœa. The patient had been aware of a "lump" in the right iliac region during the last 12 months. This had occasioned no symptoms until six months ago, when an attack of acute abdominal pain occurred at the close of a menstrual period. This passed off after a few hours, and there was no recurrence until a week before admission, when a similar attack occurred, but of greater intensity. During the few days prior to admission the patient had experienced some dysuria. There were no symptoms of pressure on the rectum. On examination, a firm, hard, mobile mass, occupying the right iliac region, could be palpated and its origin from the pelvis was traceable. The cervix was smooth and conical, and the mass was connected and continuous with two irregularly rounded, hard, but mobile pelvic tumours, which appeared to be situated in a position anterior to a somewhat bulky uterus and roughly one on either side of it. A diagnosis of solid ovarian tumours, with torsion of the pedicle of one of them, was made.

On opening the abdomen the uterus was found to be the seat of numerous fibroids. The two masses which had been palpated vaginally were two subperitoneal fibroids springing from the antero-lateral aspect of the uterus and possessing definite pedicles. Torsion of the pedicle of one of them had occurred. The uterus and its appendages were removed by subtotal hysterectomy.

The second subperitoneal fibroid, the size of a fœtal head, had undergone hyaline degeneration, and there was evidence of calcification in its substance.

Dr. Bailey said that it was interesting to note the absence of menorrhagia, notwithstanding the numerous interstitial fibroids present. He had operated recently on three other cases of multiple uterine fibroids, in none of which had menorrhagia been a symptom.

Dr. J. W. BRIDE showed a specimen of fatty tumour of the uterus.—The PRESIDENT said that, judging from the size of the fat globules seen in the microscopical sections, it was clearly a case of fatty infiltration.

Dr. S. B. HERD described a case of

Puerperal Ovarian Thrombophlebitis.

The patient was aged 30. Four previous confinements, all normal except for œdema of legs during last three months of the fourth pregnancy. During present pregnancy had marked œdema of ankles during the last two weeks. She was delivered at home by fairly easy high forceps. She was admitted to hospital during the third day after delivery with a temperature of 100·4° F., pulse-rate 120. There was slight jaundice, she looked ill, and was anæmic. There was œdema in both ankles. Lochia normal. Uterus tender but well involuted and no swellings palpable. The urine contained no pus but there was a feeble growth of staphylococci. The temperature settled down next day, and the uterus continued to involute. Blood culture negative. On the eleventh day another rigor took place but there were still no localising symptoms. Patient was given serum and quinine, ergot, and pituitrin. On the twelfth day there was tenderness in the popliteal space and left calf, but no vein was palpable. There was tenderness in the left fornix but no swelling. The uterus was normal. On the following day blood culture showed chained streptococci. On the fourteenth day the abdomen was opened. The left ovarian vein was found to be thrombosed, the thrombus extending almost, if not quite, up to the renal vein. Ligature and excision of the left ovarian vein was performed, and the left ovary was removed. No other abnormality was found in the abdomen. The patient was very shocked after the operation and died 15 hours later in spite of blood transfusion. There were no further rigors.

The conclusions Dr. Herd drew from the case were (1) the importance of early diagnosis; (2) that complete excision of the vein was preferable to ligature; and (3) laparotomy might be performed earlier in obvious cases of pyæmia where the patient was rapidly becoming worse, in spite of active treatment.

Prof. MILES PHILLIPS (Sheffield) did not consider that laparotomy was justifiable in a serious case of puerperal septicæmia, unless the diagnosis was certain.

Dr. K. V. BAILEY described a case of

Atresia of the Vaginal Vault causing Dystocia.

On vaginal examination during labour no cervix or external os could be felt. The vaginal vault was entirely closed, and a band of scar tissue ran across the middle of it. The vault bulged under tension on either side, and there was considerable thickness of tissue composing it. A healthy male child was delivered by Cæsarean section and the uterus removed.

Mr. J. E. STACEY (Sheffield) described a similar case delivered by Cæsarean section.—Dr. F. H. LACEY (Manchester) also described a similar case in which rupture of the uterus occurred early in labour and hysterectomy was performed.—Prof. A. DONALD (Manchester) attributed the presence of excessive scar tissue in the vagina following colporrhaphy to the use of strong and harmful antiseptics. — Prof. FLETCHER SHAW (Manchester) mentioned recent cases of sloughing and stenosis of the vagina following the use of methylated spirit as an antiseptic.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.

AT a meeting of this Society held at the Miller General Hospital on Feb. 10th, Dr. CHARLES THOMSON occupied the chair and Dr. R. TRAVERS SMITH gave an address on the

Origin and Diagnosis of Functional Cardiac Murmurs.

He insisted that the subject was important in that it was not rare to meet patients who had been condemned to invalidism because such murmurs had been mistaken for signs of serious organic disease; because special books on heart affections rarely discussed the precise mechanism of these murmurs; and because books on general medicine, whilst giving some clinical description of these murmurs, usually did so only under the heading of anæmia. He pointed out how easily it can be proved that many patients with functional murmurs have no anæmia, and vice versa. The commonest functional murmur, the pulmonary systolic, was due to diminution of tonicity, with consequent dilatation and impaired contractility of the conus arteriosus, the thinnest and weakest part of the outer boundary walls of the ventricles. Thus, at its systole, the larger and stronger portion of the right ventricle forced blood through the dilated conus, through the relatively narrow pulmonary ring, and into the larger lumen of the pulmonary artery. He submitted that this condition was sufficient to cause a murmur, and that dilatation, distortion, or displacement of the pulmonary artery by the enlarged conus was not essential. It was difficult to understand how a dilated conus could pull up the apex, and, at the same time, push up the pulmonary artery. Having discussed the variations of pulmonary functional murmurs with exertion, excitement, posture, and pressure, Dr. Travers Smith stated that expiration constantly accentuated them, and inspiration diminished them, especially when forced. The murmur would sometimes become audible only during prolonged forcible expiration. He attributed this "respiratory rule" to the fact that inspiration widens the pulmonary capillaries, diminishing the pressure in the pulmonary artery, so that the dilated conus has less pressure to overcome, therefore its contraction more nearly approaches in completeness to that of the rest of the right ventricle. During expiration this sequence is reversed. Apical and tricuspid systolic functional murmurs were attributed primarily to diminished muscular tonicity at the left and right auriculo-ventricular orifices respectively. It was suggested that the three murmurs hitherto mentioned might well be called "hypotonic murmurs," in that tonicity was the myocardial function most impaired. The vast majority of these murmurs disappeared when the general body tone was attended to appropriately, and, therefore, these murmurs were never, in the absence of other signs of heart failure, sufficient evidence on which to base a diagnosis of any serious cardiological condition—though the cause of the general debility might be serious. What was sometimes called an aortic functional murmur was usually pulmonary, transmitted to the aortic area and occasionally along the carotids; it then followed the "respiratory rule" at both these situations. If a separate aortic murmur existed and was due to a corresponding local dilatation of the left ventricle to that of the conus on the right, such an aortic murmur ought to increase with inspiration, which raised aortic pressure. Lastly, bruit de diable, subclavian, cardio-respiratory, and pleuro-pericardial sounds were dealt with. Having pointed out that every abnormal sound hitherto mentioned was systolic in time, Dr. Travers Smith said that on a few very rare occasions he had heard transient diastolic murmurs that he considered functional because they had only been heard in cases with loud pulmonary functional murmurs. He attributed them to the diastole of the right ventricle sucking blood back from the dilated conus as well as from the right ventricle, and the meeting of the two streams. On each occasion these diastolic murmurs were heard over the conus and were traceable downwards.

CHARITY ORGANISATION SOCIETY.

A SPECIAL meeting of the Council of this Society was held at Denison House on Feb. 13th to discuss the relationship of the

VOLUNTARY HOSPITALS AND THE PUBLIC AUTHORITIES.

Lord DAWSON, who occupied the chair, announced that the object of the meeting was to discuss how the hospital accommodation of London could be best directed and coördinated. The progress of medical science, he said, and the alteration in the social needs of the people called for a larger supply of hospital accommodation than was formerly necessary. This demand had been met largely by voluntary effort, reinforced in recent days by the utilisation of some of the poor-law hospitals. This use of the poor-law hospitals for the treatment of the same classes as used the voluntary hospitals had been made possible by the separation of their function of the care of the aged and infirm from that of the treatment of persons suffering from illness or injury. These municipal hospitals—he used this term advisedly, as it should properly replace the old name "poor-law"—had been started on the rates, and had gradually attracted to their staffs consultants and specialists. It must be remembered that their work would grow. When the Poor-law Reform Bill became law, the public authority in London would be responsible for over 100,000 beds. Were there then to be, he asked, two parallel and competing hospital systems, or was there to emerge a well-thought out system of coöperation? The big teaching hospitals of London were part and parcel of the national life, and their traditions were centuries old; on them depended the future supply of doctors and nurses and, very largely, research into new means and methods, and to them the profession looked for guidance. No wise statesman, therefore, would try to undermine their position, but would ensure their utmost use in any national scheme. They had become what they were chiefly by the flexibility of their administration, which encouraged initiative, and which contained none of the cramping routine which seemed inseparable from State-aided institutions. They were, in short, the embodiment of

The Voluntary Spirit.

This was the management of hospitals by bodies which did not owe their origin to any State or municipal government, though this government might lay down certain general conditions. The voluntary hospitals were gathered under the ægis of the King Edward's Hospital Fund, which secured a certain amount of coördination without interfering with their independence. When the public authority took over its 100,000 beds, were they to utilise the great experience of the voluntary hospitals in building up their system, and preserve their spirit, or were all hospitals to fall under a bureaucratic control, with its rigid restraint and costly expenditure? To administer the great teaching hospitals of London would mean the addition of 8*d*. in the £ to the rates. If the voluntary system was to be maintained, the voluntary hospitals must rise to the opportunity. They could not stay where they were; they must either recede from the position they occupied or shoulder wider responsibilities, leading the new movement in friendly coöperation with other bodies.

Sir WILLIAM HAMER then read the paper printed on p. 334 of this issue of THE LANCET.

Dr. GRAHAM LITTLE advocated the retention of the voluntary system unmarred. Its characteristics—independence and charity—had attracted the best men and women to its service for generations past. With the consequent development of medicine had come an increased demand for treatment, which was focused upon the voluntary hospitals. The poor-law infirmaries which had grown up alongside them, tended by reason of their constitution to a certain lack of individuality; their organisation was stereotyped and inelastic. Supported by the public purse, they tended to compete with the voluntary hospitals in equipment, but not in personnel. Although there was ample accommodation for the population, some hospitals were full to overflowing, and the state of affairs called for a redistribution rather than provision of fresh beds, which was one of the most expensive items in hospital administration. The provision of apparatus and special services was another costly item, and if specialist staffs were paid for at market rates the figure would again be very high. The voluntary hospitals of London needed 11,000 more beds; the infirmaries had 20,000 to 30,000 beds empty, according to season. Several factors accounted for the anomaly—the atmosphere of an institution where personal service was given freely was entirely different from that of an institution run by salaried officers under a Government department, where individuality was lost. Patients were attracted to the independent and ambitious staffs of the hospitals. Poor-law suffered from easily removable handicaps: for instance, legal disqualification of pauperism, and the rule that only patients from the district could enter an infirmary. The inherent disadvantage was, however, the prohibitive cost of providing out-patient departments and special medical and surgical services, and the unlikelihood that the same class of officers would be secured by payment as worked at the voluntary institutions. Dr. Little proposed the establishment of an advisory council, to be tried first in the metropolis and then, if successful, in the provinces. This body would contain delegates from the King Edward's Fund, the Ministry of Health, and the London County Council, and should succeed in coördinating the service if it remained essentially voluntary. This scheme worked well in certain universities which received large sums of public money without losing their independence.

A Scheme for Coördinate Action.

Dr. HUMPHREY NOCKOLDS sketched the four main facts which rendered the question acute. First was the difficulty the voluntary hospitals had in finding money; second, the increasing population, especially in areas where large numbers of new houses were being built; third, the progress of medical science, which entailed an ever-increasing expenditure on new methods; and fourth, the increasing desire of the public for satisfactory hospitals. Commenting on these in order, he remarked that a change had taken place in the quality of the funds. Very little was heard of the voluntary subscriber; money was energetically collected from patients, and various means such as "golden ballots" had been resorted to; one hospital in South London had drawn on the rates and others were subsidised. It was admitted that voluntary hospitals were unable to cope with the demands made on them. The remedies suggested were as follows: (1) The State should take over all hospitals; this would mean the destruction of the voluntary system, and would be the worst possible course. (2) The local authorities might make grants; these would have to be so large that no Government would ever sanction them unless popular representation were given; the voluntary subscribers would then fade away and State control be established. (3) The voluntary hospitals should be linked up with and control the poor-law institutions, and find the money for both. The lack of organisation between hospitals and their slowness of procedure annulled any claim they might have to be the organising authority for a unified hospital service. (4) The last proposal, which the speaker believed to be the only really practical one, was that the local authorities should institute new general hospitals, making the present poor-law hospitals the basis of their scheme and retaining the voluntary hospitals. This would allow each hospital to administer itself, while relying on a broad, combining central authority to decide the general medical policy. The unit would be large—a county, possibly—with suitable subdivi-

sions. The poor-law hospitals would be removed entirely from the immediate sphere of poor-law relief. The danger of bureaucracy was real, but not insurmountable. The general medical hospitals must be left free from red tape, but their requirements were quite different from those of an institution for chronic cases, and if the nucleus of their staffs were appointed from the voluntary hospitals the evil should be averted. The poor-law hospitals were not unworthy to take part in an organisation on these lines; they had already assumed a large part of the burden of the voluntary hospitals, in spite of many handicaps like lack of treatment facilities, the fear of the ratepayers, and the almost complete apathy on medical matters of the poor-law section of the Ministry of Health. It was the fashion to decry these institutions and say that patients would not go into them; the fact was that they had to cater for the patients refused by the voluntary hospitals. Dr. Little's figures about empty beds did not apply to London, and patients, so far from being reluctant, often asked to be sent to the infirmary. It was true that the poor-law hospitals were inadequately staffed, but this fault, with others, was being removed. In Lewisham and Eltham, with their huge new populations, the guardians had stepped into the breach, which would otherwise have remained empty, against much opposition and with no help from higher authorities. A new voluntary hospital was being erected at Shooter's Hill, and would run without any connexion with the new poor-law provision; this was almost a public scandal. The example was an extreme one, but showed the present state of hospital organisation.

Discussion.

Miss E. FULFORD, chairman of the Fulham guardians, strongly defended the poor-law system from the criticisms made by Dr. Graham Little. There were no empty beds in Fulham Hospital. The atmosphere of free service was equal to that of the voluntary hospitals, the legal disqualification had been removed in 1918, and guardians put their patients' needs before those of the ratepayers. Moreover, the central authority and the Ministry of Health were most helpful.

Mr. B. METIVIER, of the Edmonton guardians, exposed the fallacy that a consultant was contaminated by being paid for hospital service.

Lord RIDDELL wondered whether subscribers would continue to support the voluntary hospitals when they saw public institutions doing just as good work and being as well run. Public bodies, however, lacked the spirit of research, and a teaching hospital could not succeed on the cast-iron lines of a rate-supported organisation. To preserve the voluntary system meant preserving the voluntary subscriber, and many persons were opposed nowadays to the principle of having the voluntary hospitals supported by a limited class and would prefer an increase of, say, a penny on the rates.

Mr. E. A. H. JAY, the propaganda secretary of King Edward's Fund, agreed that people would only subscribe to a thing which could not otherwise be obtained. Endowments, which up to 1914 had been largely adequate, had now dropped in value to 19 per cent. of the required revenue; 32 per cent. was paid by public authorities, and the remainder had to be got from subscribers. Voluntary hospitals, if they were to continue to fulfil a function that no other organisation fulfilled, should devote themselves to treating cases requiring their unique special equipment, to training doctors and nurses, and to research. Payments from the County Council might be very much larger in the future than they were at present.

The CHAIRMAN closed the proceedings with an exhortation to remember that the voluntary hospitals were a vital part of the credit of the nation abroad, a mirror of the national life, the loss of which could not possibly be contemplated.

Reviews and Notices of Books.

A TEXT-BOOK OF INFECTIOUS DISEASES.

Being the third edition of *Goodall and Washbourn's Manual of Infectious Diseases.* Revised and in large part rewritten by E. W. GOODALL, O.B.E., M.D., B.S. Lond., lately Medical Superintendent and Lecturer on Infectious Diseases and Fever Hospital Administration at the North-Western Hospital of the Metropolitan Asylums Board. London: H. K. Lewis and Co., Ltd. 1928. Pp. 718. 30*s.*

DURING the nineteen years which have elapsed since the second edition of this manual was published a vast amount of work has been accomplished, more especially in the fields of bacteriology and immunology. The third edition has increased in size by 300 pages and has developed from a manual to a text-book. Dr. Goodall's long and intimate acquaintance with all the infectious diseases met with in this country makes this volume very acceptable to all who make a special study of such diseases, and at the same time renders it a very useful reference book for students and practitioners. The introductory chapter is specially written for D.P.H. students who wish to know "something about epidemiology." The ordinary student can afford to leave this chapter until he knows something about the diseases themselves. The next five chapters deal with fever, contagion and infection, disinfection, rashes simulating those of the specific fevers, and sore-throat, and form a necessary introduction to a closer study of the actual fevers, which are fully discussed in the rest of the book. These early chapters are clearly written. Diphtheria, a disease which—in spite of serum treatment—is still serious, is dealt with very thoroughly in a chapter of 70 pages. Dr. Goodall considers that "the Schick test is of no value in the diagnosis of diphtheria," a statement which will not be readily accepted by those who have had opportunities of studying its significance in this connexion, and who will rather agree with Dr. Rundle in Ker's Manual of Fevers, who says that "100 per cent. of diphtheria cases are Schick-positive at the beginning of the attack." Dr. Goodall does not approve of swabbing contacts, but recommends Schick-testing and active immunisation as the solution of the problem of prevention. The author's experience of intubation in laryngeal diphtheria makes interesting reading; no mention is made, however, of feeding by the mouth in such cases.

The chapter on scarlet fever runs to 60 pages and includes an account of the Dick test, the Schultz-Charlton reaction, and immunisation against the disease with streptococcal toxin. Dr. Goodall thinks that the results of immunisation are so far not encouraging. Concentrated scarlet fever antitoxin is recommended by the author in the treatment of this disease in doses of 10–50 c.cm., given intravenously if necessary, but he remarks that "the serum appears to have no effect on complications when once they have set in." Most observers will agree with this.

The chapter on influenza is interesting, dealing, as it does, with the pandemic of 1918–19. Encephalitis lethargica, anterior poliomyelitis, and cerebro-spinal fever are all carefully considered. In Dr. Goodall's opinion the prognosis of encephalitis lethargica should be extremely guarded, and he quotes the epidemics in Sheffield and Belfast to prove this. For anterior poliomyelitis the Thomas straight frame with headpiece is recommended at first, and later natural movements of the affected limbs. Dr. Goodall does not apparently advise electrical treatment locally, and quotes Lovett, who says "that, after many years experience of it, he has never been able to satisfy himself that it was of any value." Many observers will agree with this. In the sequel there is a very clear and useful description of the cerebro-spinal fluid in all these diseases. Dr. Goodall considers that the temperature of the measles ward

should be 60° F., and that the patient should be protected from draughts with screens. This is scarcely necessary, and, as long as a measles patient is warm in bed, the freest possible ventilation is undoubtedly best, as recommended by Foord Caiger, and especially by Ker. Recent work on the prophylaxis of measles is discussed by the author in all its aspects. The chapters on small-pox, chicken-pox, typhus, and enteric fever are excellent and well worth reading from beginning to end. The chapters on glanders and anthrax are still retained. There are throughout excellent plates, photographs, diagrams, temperature charts, and tables which the student, in particular, will find extremely useful, while the appendices contain interesting matter. The reader will thank the author for dotting the book so plentifully with references.

Both author and publisher are to be congratulated on the third edition of this volume which is thoroughly up to date and should make a valuable addition to the library of every medical practitioner.

MALARIAL TREATMENT IN SYPHILIS.

Die Malariatherapie der Syphilis. By Dr. JOSEF MATUSCHKA and Dr. RUDOLF ROSNER. With an Introduction by Prof. ERNEST FINGER. Vienna: Julius Springer. 1927. Pp. 84. M.4.80.

THIS is the first account we have seen of the application of malarial treatment to syphilis in general. It records observations extending over four years and embracing 500 cases, in only 135 of which the nervous system was involved; and since the effects of malaria on the various forms of nervous syphilis are now widely known the main interest centres in the treatment of the other cases. The argument on which the authors base their wider application of malaria therapy is that as salvarsan and mercury are not direct spirochæticides their apparent action in the human body must depend on inducing a reaction of the human organism. It is this reaction and not the drugs themselves which destroy the infective agents; the action being apparently a mediate one, it seemed that the effect of any course of chemical treatment must depend on the state of the human body concerned and that various influences might increase or decrease the body's reaction.

Fever was already known as a powerful adjuvant, but experiment showed that alone it could not effect a cure, and might, in fact, hinder later treatment combined with intensive salvarsan courses it gave extremely good results. In early syphilis—that is, with infections of less than two years' standing—such combined treatment rendered the Wassermann reaction of the blood negative in 99 per cent. of cases and in all these cases the negative reaction was maintained; the cerebro-spinal fluid became negative in all cases in which before treatment it had been positive, but there were a few cases in which fluid previously negative to the Wassermann test became positive during the treatment. Serological relapses have hitherto been extremely rare, but clinical relapses, though still very few in number, have been a little more frequent. With infections of longer standing the results, while less brilliant, were yet better than those obtained by any other method of treatment, the Wassermann reaction of the blood becoming negative in 61 per cent. and that of the cerebro-spinal fluid in 55 per cent. of cases; no serological relapses have been observed in this group. In selected cases of pregnancy the treatment was well tolerated and gave excellent results. Congenital syphilis responded partially to the treatment, cases of early interstitial keratitis being aborted and those of the established condition being often greatly improved.

The authors of this brochure are convinced that in malaria therapy medicine has a powerful new weapon. Their technique, which is fully described, involves two inoculations of malaria, and they find that the incubation period is on the average five days. During the attack of malaria the Wassermann reaction, if not already positive, usually becomes so. The most important contra-indication to the treatment is cardiac disease. Many individual cases are described and various problems raised are discussed.

Altogether this is an interesting account of a valuable piece of pioneering work.

Reports and Analytical Records.

AUSTRALIAN WINES:
(1) MELVINA WHITE; (2) IMPERIUM RED.
(SOUTHARD AND CO., LTD., 2, ST. DUNSTAN'S HILL, E.C.)

(1) Melvina White (Australian), when analysed, was found to have the composition:—

Alcohol by volume	19·4	per cent
,, weight (grammes per 100 c.cm.)	15·3	,,
Total sugar	9·55	,,
Sugar-free extractives—		
Total acid as tartaric	0·27	,,
Mineral matter	0·31	,,
Water	74·57	,,

Preservatives were tested for with negative results. The wine is of a rich type and possesses an agreeable palate and aroma. These qualities in conjunction with its purity add to its value as a wine for tonic purposes.

(2) On analysis Imperium Red (Australian) gave the following results:—

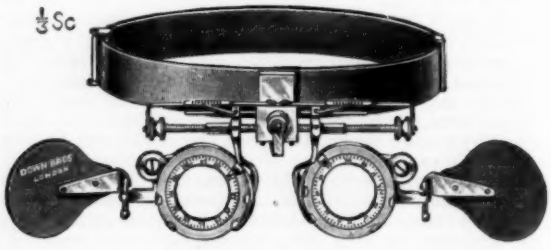
Alcohol by volume	19·3	per cent.
,, weight (grammes per 100 c.cm.)	15·2	,,
Total sugar	9·9	,,
Sugar-free extractives—		
Total acid as tartaric	0·37	,,
Mineral matter	0·38	,,
Water	74·15	,,

Preservatives, and colouring matter not natural to a red wine, were tested for with negative results. The mineral matter contains iron to the extent of 2·6 parts per million of wine. The wine has a rich sweet fruity flavour, and resembles a good port in appearance, aroma, and palate. It is a pure and sound wine, and the presence of organically combined iron may be regarded as an asset. So high grade an Australian product merits the attention of medical men and others who have to advise on matters of food and beverages.

New Inventions.

A NEW FORM OF TRIAL FRAME.

IN estimating by retinoscopy the refraction of school-children the combination of the ordinary trial frame and head band here illustrated has been found



convenient. It can be readily fitted to the varying sizes and shapes of the head and once fitted remains firmly in position. I have given it a year's trial and can confidently recommend its use.

The apparatus has been made for me by Messrs. Down Bros.

Reading. JOHN PARRY PRICE, M.D. Oxf.

THE LANCET.

LONDON: SATURDAY, FEBRUARY 18, 1928.

THE BICENTENARY OF JOHN HUNTER.

JOHN HUNTER is one of the great men whose fame has not only withstood the test of time, but has increased steadily as the developments of physiology and the progress of surgery have proved his work prophetic and fruitful beyond anticipation. Sir HOLBURT WARING, in the Hunterian Oration delivered before the Royal College of Surgeons of England on Tuesday last, reviews briefly the progress of surgery during the last 160 years, taking 1768 as approximately the date when HUNTER'S boundless imagination and inventiveness, spurred on by an insatiable curiosity, began to have the practical shape which led to the revolution of our science. "HUNTER fully recognised," said the Hunterian Orator, "that a minute and thoroughly comprehensive knowledge of the pathological processes occurring in inflammation and growth is the real basis of a considerable amount of practical surgery." This may seem to be a colourless way of describing HUNTER'S essential message to us, but it is an exact way, and none the less forcible because it is short and unadorned. The conception thus briefly outlined was absolutely new to HUNTER'S generation; its implications were not perceived until HUNTER'S teaching was the scientific creed of all surgery; and its developments, which became immense with the opportunities afforded by LISTER'S discoveries, are still unrolling themselves before us.

In the Vicary Lecture Dr. G. C. PEACHEY, while identifying the homes of WILLIAM and JOHN HUNTER in London, has added much interesting and agreeable comment, helping us to visualise the intensive industry of the famous brothers. We learn once again how much the immortal work of the younger owed in its inception to the brains of the elder, as well as to his spirit of sacrifice; and we get a good idea of the environment of the scientific student in the eighteenth century. WILLIAM HUNTER derived almost nothing from academic instruction, and JOHN was practically self-taught, save where he obtained information through contact with his brother, from a few colleagues, and doubtless through his labours in instructing pupils. Science in those days had no endowments at all in England, and the benefits which JOHN HUNTER conferred upon mankind were created by his own intellect, working in a world where nothing but research counted for him. Nor were any easy aids to social advancement given in the reigns of the Georges to scientific workers, as they were bestowed freely upon political partizans; the modesty of the social circle in which JOHN HUNTER moved while he was pouring out treasures of brain—and all the money he could earn—in behalf of his fellows, is indicated clearly in the Vicary Lecture, and emphasised in a series of letters to his parents from Prof. WILLIAM HAMILTON, the pupil of both brothers. These we have been able to reproduce through the kindness of his descendant, Dr. LOUISA HAMILTON, and they form a remarkable addition to our knowledge of the workaday life of the medical student a century and a half ago. The series closes with one from a London physician to Prof. WILLIAM HAMILTON'S father, THOMAS, who was filling the chair in anatomy at the University of Glasgow, to which the son succeeded. In this a vivid picture is given of the great master actually at work, a pathetic picture when we recall his physical frailty at the time; and how real that frailty was we can gather from Dr. J. A. RYLE'S communication on another page. Dr. IRVINE'S letter displays JOHN HUNTER immersed in his marvellous investigations, and it is timely, indeed, that the document should attain publicity on his two-hundreth birthday.

IODINE IN THE PROPHYLAXIS OF GOITRE.

INVESTIGATION into the causation of endemic goitre, still so prevalent in many parts of the world, was quickened by interchange of view at the recent International Goitre Conference held at Berne, and reported [1] for us by Prof. F. DE QUERVAIN, himself one of the foremost authorities on the subject. Clinical and museum specimens in abundance illustrated the vital importance of goitre in Switzerland. The Congress being preliminary, its time was largely occupied with the ætiology and epidemiology of endemic goitre, the most generally accepted view being that there is some toxic cause, its nature still unknown, the action of which can be prevented or counteracted by the ingestion of iodine, and that endemic goitre arises when there is a deficiency, absolute or relative, of iodine in the food and drink. The three introducers of the discussion—WAGNER JAUREGG (Vienna), MUGGIA (Sondrio), and SILBERSCHMIDT (Zurich)—as the result of experience in different districts, advocated the general preventive treatment of goitre by the use of iodised salt in the proportion of 5 mg. KI to each kilo of salt, the equivalent of gr. 1/26 to 1 lb. In the case of three varieties of iodised salt on sale in this country the strength varies from gr. 1/8–1/50 of NaI to 1 lb. of salt. Assuming that an average adult consumes about grs. 75 of table salt a day or 4 lb. in a year, it follows that if even the strongest of these salts is employed only gr. 1/2 of NaI would be consumed in 12 months. Such small amounts may be regarded as harmless; it is questionable if they are large enough to be efficient. In Austria, however, the use of iodised salt in the strength named above for three and a half years has been attended with a distinct diminution in the frequency of goitre during the school years. However this may be, it was agreed in general at the Berne Conference that in districts where goitre is endemic three measures are desirable: (1) the general use of a slightly iodised salt by the whole population in order to supply the physiological dose of iodine lacking in the food and drink; (2) goitres, when detected in the course of school inspections, require treatment with iodine under medical supervision; (3) care should be exercised to prevent the use of excessive doses of iodine in the treatment of adults. Swiss records have provided Dr. PERCY STOCKS, of the Galton Laboratory, with material for a valuable statistical survey [2] of the influence of iodine on the incidence of goitre and on the physical growth of school-girls. The worth of some previous surveys has been diminished, owing to difference of view as to what constitutes a goitre, but in this case the classification was that of the Swiss Goitre Commission, and the examinations were made almost entirely by the same medical officer. The routine treatment was to give one tablet a week of NaI 2 mg. (gr. 1/32), and the analysis clearly showed the efficiency of the treatment in reducing the size and incidence of the

[1] THE LANCET, 1927, ii., 1239.
[2] Annals of Eugenics, October, 1927.

goitres. Its effect was also observed on the growth of the girls between ages 11 and 16 who had goitre at the commencement of treatment. Information on this point was desirable, as it has been recognised by Swiss clinicians that in cases of endemic goitre there is a definite retardation of growth. Dr. STOCKS's analysis demonstrates an increase both in height and weight as a result of the iodine treatment, the more marked the goitre at the commencement of treatment the greater the increase in weight. It does not follow that iodine has a similar effect on the growth of normal girls in a non-goitrous district.

The prevalence of thyroid enlargement in English-speaking countries is still largely a matter of conjecture, although some exact surveys have been made. Dr. R. OLESEN based an estimate[3] of the frequency of goitre in Oregon and other North American States on the draft examinations of recruits. He has now gone on to the systematic examination of school-children. The observations,[4] which were all made by the same person so as to ensure uniformity, comprised the children in the schools of 32 towns in Oregon; 8181 boys were examined, of whom 1826, or 22·3 per cent., showed thyroid enlargement, while 3617, or 38·3 per cent., of 9427 girls were similarly affected. In Oregon, although there is less goitre in the sea-coast towns than in those situated further inland, thyroid enlargement is nevertheless fairly frequent near the sea. This distribution differs from that found in Massachusetts, where goitre is infrequent at Cape Cod and in the eastern part of the State near the sea, but is common in the western inland part. Examination of some of the water-supplies in Oregon shows a marked paucity of iodine; thus in the water supplied to Oregon City, in which the greatest frequency of endemic goitre among girls was found, only 0·06 parts of iodine per billion of water were found as compared with 2·50 parts in the water of New York City, and 105·80 in that of Stamford, California. There is no evidence to show that goitre in Oregon is in any way associated with pollution of the drinking-water, and the experience in that State indicates that a diminution of endemic goitre has followed the use of iodised table salt.

A survey of English school-boys and girls about the the age of 12, with the intention of ascertaining the frequency of enlargement of the thyroid gland in 1924, has also been made by Dr. STOCKS,[5] based upon results obtained by school medical officers for the Board of Education. Due allowance has here been made for the personal factor of the examiner, as some 600 medical officers were engaged in examining 375,022 children, their reference being to ascertain the number "in whom the thyroid is sufficiently enlarged for the increase in the size of the neck to be noticed on casual inspection without measurement or palpation." In order to secure uniformity in such surveys in the future Dr. STOCKS proposes that "enlargement of the gland shall be deemed to commence at a thyroid breadth of 42 mm. in boys and girls at ages 11–13," and as the normal gland increases very little between the age of 10 and 14, this standard may be applied to all children between their tenth and fourteenth birthdays. By the use of a simple gauge all thyroids below 42 mm. in breadth may be classed as normal, those above 42 mm. but below 55 mm. as moderately, and all above 55 mm. as markedly enlarged. As a result of this and other observations, the cautious opinion is expressed that "it would seem that prophylactic administration of iodine to girls in some endemic areas of England and Wales might be desirable." In a further paper by Dr. STOCKS, in association with Miss M. N. KARN,[6] a positive relation is found between thyroid enlargement in children and the mortality from Graves's disease in the large towns of England and Wales, which leads them to infer that the factor which produces goitre is also one of the factors concerned in the causation of Graves's disease.

[3] THE LANCET, 1927, i., 350.
[4] Public Health Reports, Washington, Nov. 18th, 1927.
[5] Goitre in the English School Child, Quarterly Journal of Medicine, January, 1928, p. 223.
[6] Annals of Eugenics, October, 1927.

MEDICAL USES OF CARBON DIOXIDE.

THE many ways in which carbon dioxide is useful in medicine are now being belatedly discovered, but their application in practice lags behind and it may be worth while to review the facts as we know them. Its uses depend upon its action as a natural stimulant of the respiratory centre and first and foremost this action can be utilised with profit in administering anæsthetics. During induction many patients struggle and hold their breath, and it is found that by adding a small quantity of CO_2 to the inspired air, or by making the patient rebreathe what has been expired, the tension of the gas in the alveoli and blood can be so raised that long strong breaths are inevitable. Anæsthesia may thus be induced more rapidly if this is thought desirable. When the patient is unconscious respiration sometimes fails because abnormally deep breathing has reduced the tension of CO_2 in the blood, such failure occurring especially in connexion with intratracheal insufflation of ether and with gas-and-oxygen. Here again CO_2 offers a simple remedy, for it enables the anæsthetist to control the depth of respiration in accordance with the patient's changing state. Lastly, forced respiration of dilute CO_2 may be employed—provided that no objection arises because of wound or bandages—to wash the remains of an anæsthetic out of the system when the operation is over and bring the patient back to consciousness more rapidly.

All these seem to be legitimate uses of the gas; but they must not be adopted incautiously or without reference to the particular circumstances of each case. The claims put forward have perhaps been too enthusiastic, and this leads Dr. R. M. WATERS, in a recent paper [7] based on six months' trial, to lay stress on the possible dangers of giving CO_2 to sick patients whose degree of acidosis is unknown. Quantities greater than those involved in graduated rebreathing should not, he says, be given to a patient unless his acid-base balance has been shown to be normal before anæsthesia was induced, and in support of this view he mentions that collapse and convulsions have occasionally followed its administration. Inhalations of CO_2 in concentrations of 15 per cent. or more cause a considerable rise of blood pressure and an increase of the coagulability of the blood, and Dr. WATERS considers that to change the amount inspired by sick people is to interfere with "fundamental physiology," and should not be lightly undertaken. His criticism, however, seems to be directed for the most part against the use of CO_2 in strong mixture. In a summary [8] written from the more favourable point of view Dr. J. C. WHITE and Dr. L. M. HURXTHAL refer chiefly to dilutions of 5 per cent., and in this concentration regard it as valuable in many conditions in which the CO_2 tension in the alveolar air differs widely from the normal. In morphia or veronal poisoning, for example,

[7] Canad. Med. Assoc. Jour., 1927, xvii., 1510.
[8] Boston Med. and Surg. Jour., 1927, cxcvii., 1117.

the respiratory centre has become sluggish and needs further stimulation although the tension is high; whilst in carbon monoxide poisoning the tension is low and 5 per cent. CO_2 is given to stimulate the centre and promote greater oxygenation of the blood. After respiration has been re-established by artificial means this mixture should be given for 30 to 40 minutes, oxygen being used as a diluent because carboxyhæmoglobin dissociates more readily if the partial pressure of oxygen is raised.

In normal people inhalation of the gas is said to cause no disagreeable sensation beyond a slight feeling of fullness in the head; the blood pressure and pulse-rate are slightly raised. In cardio-renal disease with acidosis, however, the respiratory response to CO_2 is considerably increased and may be doubled, so that the greatest caution is required. In emphysema, on the other hand, there is little response even to air containing 11 per cent. of the gas. There seems to be a misconception abroad that the cyanosis even of anæsthesia, brain trauma, or morphia poisoning is due to an increase of CO_2 in the blood. This is not so. Lack of oxygen is the cause, and this can often be relieved by the hyperpnœa which small quantities of CO_2 in the inspired air produce. The use of the gas for eliminating poisonous substances can be extended to alcoholic intoxication—for alcohol, like ether, is eliminated by the lungs—and rapid recovery from deep coma, with lessened after-effects, has been reported, though it should be noted that mildly intoxicated patients do not benefit to a proportionate degree. In hiccup, which may be due to an abnormal stimulus reaching the respiratory centre via the phrenic nerve, CO_2 can be utilised to produce a stronger and regular stimulus to displace the weaker one that causes the spasm.[9] Carbon dioxide may also be employed (5 per cent. dilution in oxygen) to revive newly born infants; whilst depression of the respiratory centre after cerebral operations, Cheyne-Stokes breathing, diminished coagulability of the blood, and collapse of the lung following thoracotomy are other conditions in which it has been of value. Whatever the object of its administration, caution is desirable to prevent the gas being given in cases of acidosis where the blood already contains an excess of it. Otherwise, however, its use in low dilutions and with care seems to be without danger, and may sometimes prove to be of the greatest possible assistance.

RETIREMENT OF SIR FREDERICK WILLIS.

ON the last day of next month Sir Frederick Willis will cease to preside over the Board of Lunacy Control, his place being taken by Mr. L. G. Brock, who has been appointed a Commissioner of the Board for this purpose. Sir Frederick Willis succeeded Sir William Byrne as chairman seven years ago, after having been one of the principal assistant secretaries in the Ministry of Health practically from its formation, and on the permanent staff of the Local Government Board since 1890. He has, in fact, 42 years of public service behind him. His period of office at the Board of Control has covered a time of great changes and difficulties, and the Board owes much to his wise guidance. He was able in a high degree to hold the balance fair between the liberty of the subject and the need for efficient medical treatment and control, and his work was made the easier by the fact that he was a grateful personality both to the local authorities and to his medical colleagues on the Board. It may also be recalled that during the war he was in charge of the arrangements for the reception and care of Belgian refugees, and was honoured by the King of the Belgians for this service.

[9] Vide THE LANCET, 1927, ii., 1144.

Annotations.

"Ne quid nimis."

PERIODICAL MEDICAL EXAMINATION.

THE value of regular medical examinations of the healthy has been urged with much eloquence recently on both sides of the Atlantic, and it has become a serious question for medical men and insurance officers whether or not the adoption of periodical examination in this country should receive their support. Dr. H. G. Turney, in his presidential address delivered at the Assurance Medical Society on Feb. 1st, took a definite stand against the proposal, on the ground that the question was tending to become the infiltrating edge of propaganda for impressing on the popular mind the urgent necessity for watchfulness on the part of any individual who hopes to retain his health. Dr. Turney felt that there was a real danger that these vociferous warnings might help to establish something approaching a system of terrorism among the weaker-kneed section of the community. While expressing the conviction that the scheme in the States is in the hands of capable and honourable men, he doubted whether its introduction into this country would be attended by the success which it had met in America. We have not over here the large Babbitt class who have made a fortune in strenuous business, and have retired while still in the prime of life. They have unlimited leisure with little outside interest, and the advertisement columns of the newspapers give evidence of a stupendous demand for every kind of solace for bodily trouble which results from their tedium vitæ. One might be tempted to infer that the majority of American people live on a combination of patent medicine and semi-digested foods, and it is evident that a scheme of periodical stock-taking at the expense of the insurance company would be extraordinarily attractive. The investigation made by the Metropolitan Company of New York into the working of the system showed that hygienic sins were being committed by 99 per cent. of those examined. "One in three," said Dr. Turney, "ate too much meat, another third took too little water, a still larger proportion too much tea and coffee, and, horrible to relate, nearly half the whole number committed other important but unspecified errors in diet. . . .From a study of the literature one might almost be led to infer that a rigid observance of all these hygienic prescriptions would ensure complete immunity from all bodily ailments except those of old age, and even as regards these, that they would be deferred to such a remote epoch of time as to be hardly worth considering." Unfortunately every doctor knows that the people who enjoy the best health are often those who take no heed of what they eat or drink, and who make a practice of defying the laws of health; and we have, as Dr. Turney pointed out, reluctantly to admit that there are as many different standards of health which are beyond our control, as there are of intellect and morals. Some people seem to have poor health from birth or adolescence for no reason, and have to live on the dole of hope offered by some enthusiast who promises that if they will take brown bread or give up butter, all will be well. Unfortunately the effect soon wears off, and the sufferer starts on a new voyage of discovery for a cure-all. The singular thing is that this congenital incapacity to make that smooth adaptation to environment which constitutes health, has very little influence upon the expectation of life, or upon the incursion of organic disease. The introduction of a free system of examination would pander to those morbid cravings, and so far from improving health would, in Dr. Turney's opinion, concentrate people's thoughts on their internal processes and tend to perpetuate what is morbid.

The second fallacy exposed by Dr. Turney is that a slight bodily disturbance, to which the best of us is subject from time to time, will, if neglected, lead to serious disease. Doctors are constantly being exhorted

to seek disease in its small beginnings, but while it is true that the great diseases must have their beginnings, it is also true that the world is full of human beings who do not feel absolutely well all the time, and who outnumber those who are incubating organic disease by a hundred to one. Every sensible man knows that nothing perpetuates these troubles more than constant inquiries and sympathy, for they are in the main of psychical origin. The worst thing a doctor can do for a patient is to suggest, either by word of mouth or by meticulous examination, that these things generally lead to serious diseases, or indeed to any recognisable diseases at all. It is not well that a man should look too closely into his plate, and the less he thinks about it the better he is likely to digest what food he eats. Dr. Turney would hold that within very wide limits it does not matter a bit what a man eats, provided he does not eat too much.

Dr. Turney illustrates his thesis by the quiet revolution which has been in progress in the incidence of dysmenorrhœa which is dropping to vanishing point. It has been found that this trouble prevails in direct proportion to the notice taken of it and to the multiplicity of precautions taken against it. This, he feels, carries a lesson of the importance of healthy thinking for healthy living, and by healthy thinking he does not mean thinking about health, but rather the reverse.

PROGNOSIS OF TUBERCULOUS PERITONITIS IN CHILDREN.

OPINION is still divided on the prognosis in tuberculous peritonitis, a subject which Dr. P. Nobécourt and Dr. Ilitch Dragolioub discuss in the *Revue de la Tuberculose* for last December. Physicians of a former generation, basing their opinion on a study of the caseous forms of the disease, considered that the outlook was usually unfavourable. Their successors, recognising the tuberculous nature of what had been known as essential ascites, took a less gloomy view, whilst more recently Armand-Delille has claimed 100 per cent. of cures in a series of selected cases treated by heliotherapy. In this country a general impression prevails that the prognosis in the caseous form is grave, whilst recovery may be expected in the ascitic type. Accurate statistics, however, are difficult to obtain. The child of poverty who is poorly nourished, and who complains of vague abdominal symptoms, usually finds his way sooner or later to the dispensary, where the tuberculosis officer observes the pale face, thin frame, and flaccid abdomen. The condition may be due to tuberculosis, but is more probably due to faulty diet and unsatisfactory home conditions. A diagnosis alone stands between the child and recovery. If the child is pronounced to be tuberculous the whole machinery of the public health department is set in motion on his behalf. The diagnosis is accordingly made, and wisdom is justified of her children; but the cause of scientific accuracy is not so well served.

During the six-year period, 1921–26, 25 children suffering from tuberculous peritonitis were cared for by the Children's Medical Clinic at Paris. No case in which the diagnosis was doubtful was included in the series and an attempt has been made to ascertain the after-history of each child. The result may be summarised as follows:—

1. Died in hospital, or shortly after discharge..		7 (=28%)
2. After-history unknown:—		
Disease worse at time of discharge ..	1	7 (=28%)
Disease stationary at time of discharge..	2	
Disease showing signs of improvement at time of discharge	4	
3. Patients whose after-history was ascertained:—		
Dead	1	11 (=44%)
Disease persisting	5	
Clinical recovery	5	

The cases thus show a mortality-rate of 32 per cent., but this is a minimal estimate, for it is improbable that all the untraced patients survived, whilst of the survivors several still showed signs of active disease at the end of the period under review. Five of the children, it is stated, were suffering from the caseous form and all of these died. Ascites was a prominent symptom in 14 cases, among which were five recoveries and one death, two patients being seriously ill, and three improving at the time the paper was written. This evidence suggests that peritonitis is not, as some have assumed, a relatively benign form of tuberculous infection. Its immediate results may be grave, and the possibility of relapse or obstruction due to adhesions make the future uncertain.

A brief account is given of the methods of treatment employed. During the feverish phase, often associated with the onset of symptoms, Dr. Nobécourt and Dr. Dragolioub recommend rest, the local application of hot or cold compresses, and painting the abdomen with glycerine, iodine, and guaiacol. When pyrexia has subsided heliotherapy, open-air treatment, and exposure to ultra-violet rays is advocated. Calcium phosphate or carbonate and tincture of iodine may be given internally. Under this treatment in favourable cases pyrexia declines, ascitic fluid and tumours are absorbed, while return of strength, improvement in appetite, and gain in weight herald the return of health.

TEACHING OF ANATOMY.

IMPORTANT changes are gradually being introduced in many medical schools in the teaching of anatomy, and an interesting discussion of this subject took place recently at the meeting of the Association of American Colleges.[1] In an account by Prof. J. C. B. Grant of the methods employed at the University of Manitoba emphasis is placed on the value of displaying persistently to the student the general principles which govern structure. As Prof. Grant rightly maintains, the necessary details can only be remembered when they are fully understood: for this purpose it is clear that the teacher must appeal constantly to function, phylogeny, embryology, and clinical experience to explain various morphological points. If the curriculum permits of a reasonable time being devoted to this mode of anatomical study, which demands systematic supervision and guidance of the student in his practical work rather than extensive lecture courses, he learns to correlate structure and function, and gains anatomical knowledge by personal observation and reasoning. The student is ultimately in a position to generalise from his own observations and to understand the meaning and significance of structure. This is a far more useful, inspiring, and stimulating education than the old interest-killing method of memorising innumerable facts with little or no reference to the factors influencing structure. In a second paper,[2] Prof. E. J. Carey makes a strong plea for the teaching of living anatomy, and shows how the medical student requires information about the form of the living, and not the morphology of the dead, which is practically the only knowledge presented by pure descriptive anatomy. To procure this, dissection, which is undoubtedly still a necessity, must be supplemented by every available method which will reveal the conditions during life, and the modifications in form which result from functional processes. From the responses to a questionaire sent out by Prof. Carey to the leading medical schools in Europe and America, it was found that as yet in only about 50 per cent. was there any serious attempt to study anatomy in the living subject, or to employ such means as the X ray and fluorescent screen to correct the erroneous impressions created by studies of the cadaver. British readers may be relieved to learn that the replies to the questionaire showed that British-trained anatomists, more than those of other countries, do appear to emphasise the anatomy of the living. There has been an appreciable forward movement in this country in recent years, and probably none of our anatomy departments now fails to make good use of the living model. Nevertheless, too few have yet employed other means which are available to make anatomy live, and to demonstrate

[1] Bulletin of the Association of American Medical Colleges, 1928, iii., 1. [2] Ibid., 1928, iii., 10.

that form and function are most intimately related and cannot be divorced. The tradition of descriptive anatomy remains as a considerable influence, and there is to-day an urgent need to return to the spirit of Hunter and Harvey. Anatomy has a history to be proud of, and the future is full of promise; as Prof. Elliot Smith stated in a recent Thomas Vicary lecture —"the possibilities for great achievements in anatomy were never so great as they are to-day; and the need for men who will devote their whole time and energies to the exploitation of these rich veins of ore was never so urgent as it is now in England." Many of the newer methods at our disposal for the teaching of anatomy and morphological research require special equipment, but the cost is not prohibitive. What is needed most seriously is an increasing number of trained men with the wider vision, better and more efficient coöperation between the anatomist, physiologist, and clinician, and a reasonable time in the medical curriculum for the study of the fundamental subjects.

MALIGNANT INTRACRANIAL ENDOTHELIOMATA.

STUDY of the gross and microscopical anatomy in 56 cases of intracranial endotheliomata at the Neurological Section of the Mayo Clinic has revealed the existence of a definite small group differing from the usual picture of benign encapsulated tumours. Dr. Winchell McK. Craig, of the Mayo Clinic, who reports in full on 11 illustrative cases, remarks [1] that they all showed cellular activity with areas of embryonic undifferentiated cells and mitotic figures. Corresponding to the pathological picture was a clinical history of a rapid increase in the severity of the symptoms. A review of Dr. Craig's cases indicates that in five instances the onset of symptoms occurred less than six months before the tumour became evident, and the degree of cellular activity was found to be correspondingly pronounced. In the other six cases there was a history of symptoms for from one to three years, but on closer examination it was found that the severity of the symptoms had increased shortly before the patients' admission to the clinic. Broders has shown that endotheliomata of low malignancy present a greater degree of differentiation and tend to form whorl-like masses of keratinised epithelium, whereas the more malignant types of the neoplasm do not tend to develop such whorls, the cells being undifferentiated and mitotic figures being scattered throughout. From the surgical standpoint these malignant tumours, if they have not invaded the surrounding structures, are comparable to malignant tumours elsewhere, and if they are completely removed a definite cure is effected. If, however, they have broken through their capsule and invaded the surrounding tissues recurrence is likely.

THE OPTIMUM DIET IN DIABETES.

THE employment of insulin in the treatment of diabetes has led to remarkable changes in the diets recommended for cases of the severer type. That careful dieting remains necessary in all cases is, of course, a platitude, but insulin can be used to secure the metabolism of extra food to such a degree that the total diet selected is to some extent merely dependent on how high a dose of insulin a physician cares to employ. We have been told that in some countries it is the custom for wealthy diabetics of the less abstemious type to indulge in periodic banquets at which they endeavour to remedy their excesses by extra large doses of insulin. As the result of this possibility of employing insulin to counteract the effects of food, two schools of thought have become more or less established. The first assumes that the optimum diet in diabetes is the lowest which will sustain the patient's weight and strength, with the blood-sugar always within normal limits and the minimum dose of insulin sufficient to achieve these conditions. The other school starts by working out what is considered to be a good generous diet, often chosen on the basis of 3000 calories for a man and 2500 for a woman, and proceeds to give insulin in doses large enough to keep the patient sugar-free under such conditions. The second of these alternatives is probably more popular with the patient, although it usually involves more care on the part of his medical attendant if hyperglycæmia is to be avoided. But a much more important consideration arises when it is asked which of the two methods is likely to be of greater permanent benefit. An endeavour to answer this question is found in the paper by J. M. Rabinowitch in the current number of the *Quarterly Journal of Medicine*.[1] Working in the department of metabolism of the Montreal General Hospital this observer has made close statistical inquiry into the histories before, during, and after treatment of cases selected from about 1200 attending the clinic. Many variables naturally arise in such an investigation; not only will the quality and quantity of the selected diet influence a case, but factors such as exercise, increased metabolism accompanying acidosis, the dosage of insulin, and the acuteness of the cases, have all carefully to be considered. Without entering into complicated details of the author's paper, it is worthy of record that the main conclusion arrived at is to the effect that if treatment is designed to promote continued good health for the maximum span of life in any patient, the diet chosen should not only be low in carbohydrates but in its total caloric content, whether the individual patient does or does not require insulin. The inquiries of Dr. Rabinowitch point strongly to the importance of encouraging abstemiousness amongst diabetics.

THE TREATMENT OF MAL-OCCLUDED TEETH.

OUR knowledge of the ætiology of mal-occlusion is very slight, and despite the extensive literature devoted to orthodontics, little has been said on the practical management of cases as they occur to dentists in private practice. Mr. A. T. Pitts, in the annual report of the Dental Hospital of London, 1926, deals with this gap in the dental student's education. He points out that many factors, which have no place in text-books, play their part in determining success or failure of treatment. The three criteria which he considers to justify orthodontic intervention are serious æsthetic defect, interference with the normal function of mastication, speech or respiration, and any inevitable predisposition to dental disease in later life. He maintains that the dentist should strongly urge treatment if the two last criteria exist, but must remember that a slight irregularity may actually be pleasing rather than the reverse, and that parents who press for treatment of very slight displacement in their children's teeth should be discouraged, unless the defect is likely to increase. An appliance should never be looked on as anything but a necessary evil. An important part of the treatment is the recognition of the various types of irregularity and their causes. Mr. Pitts follows Angle's classification as a useful one, but he points out that it must not be regarded as an index to treatment. In cases of inferior retrusion, in his opinion, the deciding factor is the appearance of the chin. If the chin recedes, then an attempt should be made to advance the mandible; if the chin is well-formed, then the maxilla only should be treated. He strongly contests the view that treatment should be postponed until the early 'teens, pointing out that it is now recognised that the orthodontist should attempt to stimulate bone growth at its most active period, and not confine himself to forcing teeth into new positions when bone growth is finished. He finds that children of 6 or 7 wear appliances without any fuss or interference with temper or well-being. At that age the deciduous molars are firmly implanted, and little absorption of the root has occurred, but if the dentist waits until the child is 10, expansion

[1] Surgery, Gynecology, and Obstetrics, December, 1927.

[1] Quart. Jour. Med., 1928, xxi., 211.

in the molar region will not be very successful, and it may even be necessary to wait until the pre-molars erupt. There is also a distinct advantage in expanding before the permanent laterals appear. Later treatment may well be successful, but it will have to be more elaborate and more prolonged. Although the majority of children do not resent orthodontic appliances, profound psychological difficulties may be provided by the parents. Mr. Pitts tells amusing tales of parents who interfered, more or less successfully, with treatment which was causing their child no trouble whatever. He recommends the dentist to take the parents into his confidence, to explain to them as fully as possible the why and the wherefore of the treatment in its various stages. Dealing with the vexed question of fixed or removable applances, he holds that the wise dentist will use either according to the particular case. On the difficult problem of anchorage, he says that it is wise in every case to over-estimate the resistance of the teeth to be removed, and to under-estimate the resistance of the teeth to be used for anchorage; it is far better to have an excessive anchorage than too little. Although it may be necessary to raise the bite deliberately as part of the treatment, this should be looked upon as an evil procedure likely to do harm in ordinary cases. Irretrievable damage has been done by capping a bite when this was not necessary, and Mr. Pitts's advice to those who meditate this orthodontic crime is "don't." He is a whole-hearted advocate of extraction, but with certain qualifications. He thinks that extraction should be regarded as an ancillary method of treatment, and usually combined with an appliance. A patient from whom a tooth has been extracted should always be watched carefully to be sure that the gap is properly filled in. Practical advice like this is invaluable to the dentist and of great importance to the medical man. If the family doctor does not hold sound views the dentist may not see the case until too late or may plead the necessity for treatment in vain. The general practitioner of both professions would profit by a study of Mr. Pitts's paper.

THE HEALTH OF THE ARMY IN 1926.

THE annual report of the health of the Army has just appeared and reveals a slightly higher invalid-rate, a lower number of constantly sick, and an identical death-rate with that of 1925. It was found that officers in India were less well protected by antityphoid inoculation than were the men, although there was an improvement on last year. Injury heads the list of causes of death among "other ranks," followed by pneumonia and diseases of the digestive system. There was a decrease in the number of deaths from both these natural causes. The principal cause of invaliding was middle-ear disease, which remains high and gives some cause for anxiety. Nearly a quarter of all the men invalided during 1926 suffered from ear trouble. The majority of men admitted to hospital were suffering from malaria, which was unusually severe in the Western Command in India. Influenza was very mild and only caused one death, but there were over a thousand more cases than in 1925. An interesting side-result of the coal strike was an increase in the amount of scabies, and the fact that each case lasted half a day longer than usual under treatment. This is attributed to the lack of hot water. Bermuda was the most healthy command and Malaya the worst. Venereal diseases diminished in frequency, but there is still a high incidence about the time of the Christmas furlough, when men expose themselves to infection without the preventive facilities that are available in barracks. It is hoped that a reduction in the incidence and an improvement in treatment may result from careful attention to these facts. The liability of uninoculated men to typhoid fever was seven or eight times greater than that of the inoculated, and the mortality ten times greater. We observed three years ago [1] that there was no discussion on the prevalence of tuberculosis in the reports of either of the three services. This year we note that "the whole subject of pulmonary tuberculosis in the services is being investigated by a special committee and the relation of this disease to service conditions, its incidence, invaliding, and attributability will be the subject of a report." We hope to deal with the figures of this report more fully in a later issue.

[1] THE LANCET, 1924, ii., 664.

PROTEIN TREATMENT OF DRUG-ADDICTION.

ABOUT a year ago A. Lambert and F. Tilney[1] described a new treatment of drug-addiction with a preparation called narcosan, which consists of a solution of lipoids, non-specific proteins, and water-soluble vitamins. The treatment is based on an assumption that narcotics such as morphia cause toxic bodies to be formed in the body, and that these bodies neutralise the narcotic and, in so doing, are themselves neutralised. When the narcotic is withdrawn these toxic bodies cause withdrawal symptoms because they are no longer being neutralised. Lambert and Tilney therefore proposed that when a narcotic is withdrawn narcosan should be given instead, in the hope that the lipoids which it contains will neutralise the toxic bodies, and thus prevent symptoms. The authors of a recent paper [2] on drug-addiction consider that the results of narcosan treatment are not consistent with the hypothesis on which it is based, and quote evidence to show that drug-addiction is associated with hypofunction of the endocrine system, secondary possibly to disturbance of the sympathetic. According to this hypothesis, withdrawal symptoms are due to a functional upheaval in the endocrine system. They state that the results of treatment with various endocrine extracts and also by hypodermic injection of solutions of vegetable proteins, which are regarded as stimulants of the endocrine system, confirm this hypothesis, and they point out that one of the vegetable protein substances (alfalfa protein) which they used as an endocrine stimulant is also present in narcosan. It is suggested that the beneficial effects of the latter preparation are due not to its ability to neutralise toxic bodies formed in response to the narcotic, but rather to the stimulating effect of alfalfa protein on the endocrine system. Acting on this assumption they treated a series of drug-addicts with alfalfa protein and obtained results similar in every way to those obtained with narcosan. Withdrawal symptoms were slight and the patients remained in good physical condition. It seems probable, they say, that proteins prepared from millet, rape, and hemp seed will give equally satisfactory results, but recommend that all forms of protein treatment should be reinforced by synchronous administration of orchitic and ovarian extracts, on the grounds that sexual function is invariably affected in drug-addicts. An advantage of alfalfa protein over narcosan is that it is very much cheaper.

THE INCIDENCE OF GENERAL PARALYSIS

IN view of the reports from all sides which indicate that mental disorder of every kind is on the increase in the United States, it is interesting to study the figures for syphilis and general paralysis recently issued by the United States Public Health Service to the Office International.[3] The incidence of syphilis among the general population is, of course, uncertain, but the percentage of recruits giving a positive Wassermann reaction, out of a group of close on 12,000 in 1916 was 13, and out of 856 candidates for the Washington police 15. The consensus of opinion puts the figure at 10 per cent. for the whole population, but recent research has tended to lower it. The proportion of general paralytics to others in mental hospitals seems

[1] Med. Jour. and Record, 1926, cxxiv., 764.
[2] The Proteal Treatment of Drug Addiction, by M. G. Carter, T. J. Orbison, E. H. Steele, C. A. Wright, and E. H. Williams: Med. Jour. and Record, Sept. 7th, 1927, pp. 282–284.
[3] Office International d'Hygiène Publique, Bulletin Mensuel, xix., 11.

high. St. Elizabeth's Hospital in Washington admitted 1558 general paralytics in a total of 26,500 entries between 1886 and 1924, a percentage of 5·87. In 1925–26 the percentage was 12·11. Census returns give the admission figures over the whole country as 6·4 per cent. in 1910 and 7·9 per cent. in 1922, though the proportion of general paralytics to other patients actually in hospital in that year was 3·5 per cent. The number discharged cured was 0·5 per cent.; 13·5 per cent. were discharged improved, and 11·1 per cent. unimproved. Of every 100 dying in hospital 29·5 were general paralytics and 14·54 were sufferers from cerebral syphilis. The returns of 29 State mental hospitals for 1925 showed a percentage of 13·1 admissions for syphilitic psychoses, the individual figures varying from 1·8 to 28·5 per cent. The registration bureau shows the proportion of deaths from syphilis to have remained at about 8 per 100,000 of population between 1914 and 1924; deaths from general paralysis were approximately 7 per 100,000 during each year of the war, under six in 1919 and 1920, and about six and a half from 1921 to 1924. Treatment by malaria seems to have yielded better results than most workers in this country dare to claim, for the figures given for the total remissions vary between 35 and 70 per cent. Although the census returns do not show a decrease in the incidence of general paralysis many medical sources report a decline, and this, if actual, should make itself felt on the official returns after about five years. The incidence figures for juvenile general paralysis are small. In 1910, out of 60,769 admissions to U.S.A. mental hospitals, only 17 patients under 15 were diagnosed as general paralytics. P. C. Jeans and J. V. Cooke, who examined one-fifth of all the infants born in St. Louis during a certain period in 1921, put the incidence of congenital syphilis at 3 per cent., but out of the children of 396 families examined between 1910–21 P. J. White and B. Veeder only saw two cases of general paralysis and two of tabes dorsalis. In this country in 1925 the number of patients resident in mental hospitals was 106,403, and the death roll was 8029. The number of general paralytics admitted in that year was 1218, or 1·14 per cent. of the residents; the number of those who died was 1174, or 14·1 per cent. of the total deaths. Assuming a population of 45 million, the number of deaths from general paralysis is therefore about 2·6 per 100,000, a figure considerably lower than the 6·4 of the U.S.A. census for 1924, and the other figures are well below the corresponding ones furnished by the American census. The inference is that general paralysis, in common with most other mental and nervous conditions, has a higher incidence in the United States than in this country, but the reasons for this are not as obvious as for the greater prevalence of psychogenic disorder.

Other figures, quoted by Dr. P. L. McKinlay in a paper on the relative incidence of general paralysis and locomotor ataxia among different social classes,[4] give the average death-rate from general paralysis as 9·07 per 100,000 during the three-year period 1910–12, for which the American figure is only 6·3. Contrary to the usual belief, Dr. McKinlay finds that general paralysis is proportionately more frequent in the lower than in the upper occupational classes. This might seem to dispose of the theory that this form of neuro-syphilis is determined largely by excessive brain-work. It has long been suspected that some law, and not mere chance, governs the form which tertiary syphilis shall take in a given patient, and it was Dr. McKinlay's object to discover, if possible, the significance of occupation and other social factors. He quotes the conclusion of Mott that stress on those parts of the nervous system that are most in use is an important element. In a majority of general paralytics Mott found that the gross wasting of the left cerebral hemisphere was greater than that of the right, and out of 60 successive such cases of tabes dorsalis only two were not engaged in occupations involving stress of the lower limbs. The fact that his statistics prove the opposite of the popular view may, he thinks, be due to error in the premises on which that view is based. Statistics derived from general hospitals on the social incidence of disease are apt to be vitiated by the selective methods employed. Perhaps the most telling argument, however, against the general impression is that it leaves out of account a host of factors like alcohol, which according to Mott, favours the onset of general paralysis while it merely accelerates tabes, and the higher incidence of syphilis among the lower strata of the population. Only when statistics are modified by this factor will they have any real value.

[4] Jour. of Hyg., 1928, xxvii., 174.

TANNIC ACID IN THE TREATMENT OF BURNS.

THE suffering caused by extensive burns is so intense and the danger to life is so grave that medical men cannot rest satisfied with the means at their disposal for treating the victims. We publish on p. 336 an article by Dr. R. M. Gordon on the use of tannic acid, which in his experience efficiently combats toxæmia by preventing the absorption of toxic products, as well as soothing pain and lessening scar formation. In a recent issue of the *Canadian Medical Association Journal* (1927, xxii., 1357) Dr. John Hunter records the case of a girl who was severely burned on the face, neck, and arms as the result of a gasoline explosion. The fire brigade applied a first-aid dressing of picric acid and a young doctor removed this and substituted carron oil. Next morning Dr. Hunter found that the carron oil dressing was causing intense pain and profuse discharge. He therefore sprayed on a watery solution of 2½ per cent. tannic acid, leaving a coating a quarter of an inch thick. No bandage was used and the acid was left to peel off, which it did in about three weeks' time. Relief was instantaneous and the discharge was lessened. Although pus oozed out from under the dressing there were no toxic effects. Shock was minimised by heat, stimulants, rest, and diathermy, and as soon as possible the affected areas were exposed to sunlight. The result was eminently satisfactory, and Dr. Hunter concludes that tannic acid is the treatment of election for burns.

THE MOTT MEMORIAL.

THE response made to an appeal by the Council of the Royal Medico-Psychological Association to the colleagues, friends, admirers, and former pupils of the late Sir Frederick Mott, for their coöperation in the publication of a Memorial Book has been such as to encourage the Council to proceed with the proposal. The Council has appointed a Memorial Committee consisting of Dr. C. Hubert Bond, Dr. F. L. Golla, Dr. Douglas McRae, Dr. Thomas Beaton, and Lieut.-Colonel J. R. Lord (hon. secretary). Neurologists, psychiatrists, and pathologists in Canada, the United States, and Japan, as well as in this country and on the continent of Europe, have promised to contribute papers to the Memorial Book, which promises to be of high intrinsic scientific value and should worthily perpetuate the memory of one who did so much to elucidate the dark corners of neuropathology. The Committee have opened a fund which will be devoted primarily to the publication of the Memorial Book. Donations should be sent to the Treasurer, Dr. James Chambers, The Priory, Roehampton, London, S.W. 15. A donation of not less than 18*s.* 6*d.*, if subscribed before publication, will entitle the donor to a free copy of the work when it appears.

ROYAL COLLEGE OF PHYSICIANS OF LONDON: CONFERMENT OF HONORARY FELLOWSHIPS.

THE Royal College of Physicians is celebrating on May 14th next and following days the tercentenary of the publication of William Harvey's book "De Motu Cordis," an event that laid the foundation-stone of modern physiology and scientific medicine. Delegates and distinguished guests from all parts of the world have been invited to participate in an interesting

programme of scientific and social gatherings. The College is reviving on this occasion an honour that has been bestowed but seldom in the four centuries of its existence, by electing to its honorary Fellowship the Earl of Balfour, Sir Ernest Rutherford, and Profs. Ivan Pyotrovitch Pavloff and Karl Friedrich Wenckebach, each of whom has rendered signal service directly or indirectly to the advancement of medical science.

The Royal College of Physicians of London has issued a card of lectures to be delivered at the College in the coming spring. On March 1st, 6th, and 8th Dr. F. A. E. Crew will deliver the Milroy Lectures on Individual, Familial, and Racial Inborn Differences in respect of Immunities and Disease Resistance. On March 13th, 15th, and 20th, Dr. T. Izod Bennett will deliver the Goulstonian Lectures on Some Problems of Nephritis. On March 22nd, 27th, and 29th Dr. James S. Collier will deliver the Lumleian Lectures on Epilepsy. On May 1st and 3rd Dr. E. P. Poulton will deliver the Oliver-Sharpey Lectures entitled an Experimental Study of Certain Visceral Sensations. On June 5th, 7th, and 12th Dr. Charles Bolton will deliver the Croonian Lectures on the Interpretation of Gastric Symptoms. Any member of the medical profession will be admitted to these lectures on presentation of a visiting card.

DRUGS BEFORE ANÆSTHESIA.

THE advantages of using hypodermic injection of various drugs before the administration of anæsthetics are not admitted by everyone. There are anæsthetists who never employ this "premedication," and there are surgeons who strongly object to it, believing that muscular relaxation is often deficient during operation when premedication is employed, and that convalescence is delayed. They question whether the action even of atropine may not interfere with the proper and speedy elimination of the anæsthetic. Nevertheless on the whole opinion appears to favour the use of preliminary hypodermic medication, although there is considerable variety in the drugs and doses recommended. From the point of view of the patient's comfort there is often undoubted advantage. The gain to a highly nervous, frightened, or restless patient from a sedative injection of scopolamine with morphine or omnopon is so great that it generally outweighs possible difficulties. The enthusiasts for preliminary medication make claims, however, that are scarcely justified in practice. It is said, for example, to "abolish all psychic impulses, maintain the normal ratio between respiration and circulation, render shock less liable both during and after operation, shorten the period of convalescence," and usually to prevent nausea or vomiting. This is surely an overstatement. Some experimental work recently recorded by J. T. Gwathmey[1] appears to show, as far as it goes, that in rats, at any rate, preliminary medication does exercise a protective influence on the tissues of the lung. Sulphate of magnesium (2 c.cm. of 50 per cent. solution) is the drug most approved of by this authority, and he uses it in conjunction with small doses of morphia.

[1] Amer. Jour. Surgery, December, 1927.

SUSSEX PROVIDENT SCHEME.—During the seven years of its existence, no less a sum than £33,534 6*s.* 2*d.* has been paid to the coöperating hospitals and authorities on account of services rendered to members of the Sussex Provident Scheme. From the sum of £332 17*s.* 3*d.* in 1921, the total has increased by leaps and bounds each year, the total paid over for 1927 being £9287 17*s.* 9*d.* In this latter year the Royal Sussex County Hospital received £4434 8*s.* 4*d.*, and other large amounts included: Royal Alexandra Hospital for Sick Children, £914 9*s.* 3*d.*; New Sussex Hospital, £887 17*s.* 3*d.*; Sussex Maternity and Women's Hospital, £544 9*s.* 1*d.*; and Brighton and Hove and Preston Dispensary, £540 9*s.* 3*d.* The poor-law authorities received £265 13*s.* 8*d.*, and the sum of £258 17*s.* 9*d.* was refunded to subscribers for treatment at non-coöperating hospitals and benefits under the supplementary section.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCLXIII.—THE TREATMENT OF LICHEN PLANUS.

Lichen planus may be of the most trivial import as regards its effect on the patient or may be one of the most distressing diseases. It may begin gradually and insidiously or acutely, but I do not think it ever disappears very quickly. At the outset, therefore, it is well to treat every case with caution, as it may be difficult to tell, even in the presence of an apparently mild case, whether one may not be confronted rather suddenly by a serious outbreak.

The treatment may be divided primarily into that aimed at suppressing the disease as a whole by measures which may be called constitutional, and the purely local measures designed to allay discomfort and disfigurement. As a matter of fact, there is some overlapping of these measures, since lichen planus is one of the diseases in which local traumatism determines in a striking measure the appearance of new lesions.

Constitutional Treatment.

In determining the seriousness of the attack I think attention should be paid chiefly to the presence or absence of itching, and its degree when present. In the more moderate cases where itching is not extreme in its severity one may choose as the form of constitutional treatment the administration of drugs. Of these, two stand out pre-eminently—namely, mercury and arsenic—though opium and drugs of the phenazone group are often useful in addition. If the itching be fairly severe and the eruption be coming out acutely, it will be better to avoid arsenic and to rely on mercury, combined or not with one of the above-mentioned sedatives.

The time-honoured liquor hydrargyri perchloridi introduced by Liveing is extremely valuable and may be given in doses of ½ to 1 drachm three times a day. Of recent years, however, I have been greatly struck with the efficacy of the yellow mercurous (not mercuric) iodide, which may be given in doses of an eighth of a grain three times a day, preferably between meals. If sleep is much broken a dose of opium, say, tr. opii ℥xv., may be given at night for a time.

As soon as the more acute phase of eruption and the irritation subside, this treatment may be changed, and arsenic substituted, and arsenic may also be used by the more experienced from the beginning, where itching is absent and the type of eruption not very fiery. It may be given as liquor arsenicalis (℥v., t.d.s., post cibos), and, in my experience, is as efficient in this way as in any other, unless the patient has an irritable alimentary tract and is unable to tolerate arsenic by the mouth. In this case one may resort to injection, and the most approved form of recent years is the drug known as acetylarsan. It may be given in doses of 3 c.cm. (equal to 0·7 g. of the salt) twice weekly, up to 15 injections.

In very severe cases, where itching is intense, sleep almost entirely lost, and the patient's condition threatening, I can confidently recommend the treatment introduced by Thibierge and Ravaut, of lumbar puncture and the withdrawal of from 6 to 8 c.cm. of the cerebro-spinal fluid. In almost every case in which I have used it the result has been dramatic and not infrequently the whole aspect of the case has changed within 24 hours, the maddening itching subsiding, and sleep being restored.

It should never be forgotten that the nervous condition is almost invariably unstable in severe lichen planus, and that insomnia not only distresses the patient but aggravates the eruption. I invariably keep my patients in bed for 48 hours after the treatment by lumbar puncture, but, as a rule, in a case

severe enough to demand this form of treatment the patient should be kept in bed in any case.

Lastly may be mentioned, as having a somewhat similar effect, the radiation of the spine with X rays, a pastille dose being given through an aluminium filter. Very strong claims have been put forward in favour of this form of treatment, but I have not used it as it does not appear to be so rapid in its action as the withdrawal of cerebro-spinal fluid, and I feel that we are more absolutely certain that the latter does no insidious damage.

Local Measures.

The local treatment of the more recent case depends on the form of the eruption. Where the typical plane papule is present alone I find that lotions act better than ointments, as the latter give a feeling of heat. I generally find either liq. picis carbonis 2 per cent. in lotio calaminæ, or the following lotion efficacious :—

Phenol cryst.)	āā ℥ ss.	Sp. vini meth. indus-	
Camphor)		trialis	℥ iv.
Hydrargyri perchlor.	gr. i.	Glycerini	℥ i.
Pulv. tragacanth. ..	grs. xv.	Aq. destill. ad ..	℥ viii.

In some cases and at some stages the horny follicular papule is the chief lesion, and in such I find the following ointment useful :—

Acid. salicyl.	.. grs. xxv.	Ol. olivæ	℥ i.
Sapon. mollis	.. ℥ ii.	Adip. lanæ ad ..	℥ i.

This should be thoroughly rubbed in once a day and washed off before applying afresh.

Verrucose Patches.

Lastly must be mentioned the verrucose patches usually seen on the limbs and chiefly below the knees. Such patches seem to have little or no tendency to spontaneous cure and may last for many years if untreated. Sometimes they are very irritable, at others merely disfiguring. Many forms of treatment have been recommended for them, and it is usually believed that constitutional treatment is without effect upon them, though I have seen them flatten down and disappear in a remarkable manner after lumbar puncture.

The local treatment recommended includes that by X rays, by freezing with carbon dioxide snow, and even destruction with the actual cautery. All of these are unsuccessful at times, though one or other may occasionally succeed. Of recent years, however, I have had remarkable success by the following method. The patch is thoroughly rubbed in with the following ointment :—

Phenol cryst.)	āā grs. xxv.	Ung. hydrargyri ..	℥ ii.
Camphor)		Adip. lanæ ad ..	℥ i.

An area larger than the patch is then covered in with zinc oxide strapping, which, of course, adheres only at the edges beyond the greased area, but keeps the whole area, as it were, locked up in a waterproof dressing. It should be renewed daily, and should it excite some inflammatory reaction it should be stopped for a time and the part soothed down with lead or calamine lotion, and then reapplied after the reaction has passed away.

ARTHUR WHITFIELD, M.D., F.R.C.P. Lond.,
Consulting Physician to the Skin Department, King's College Hospital; and Emeritus Professor of Dermatology, King's College, London.

GLASGOW DENTAL HOSPITAL.—At a meeting in aid of the building fund of this institution it was stated that the Dental Board of the United Kingdom had granted £6000 towards the fund, £1000 of which is for equipment. Sir Holburt Waring, treasurer of the Dental Board, said that the work of the staff had to be done in "a derelict dwelling-house," and Dr. A. S. M. Macgregor, the Glasgow medical officer, added that the premises were insanitary and that it was impossible to make any provision for dental research.

The Services.

ROYAL ARMY MEDICAL CORPS.

Capt. J. C. Burns, half pay list, late R.A.M.C., retires on retd. pay on account of ill-health contracted on active service.

Lt. (on prob.) W. R. C. Spicer, from the secd. list, is restd. to the estabt.

TERRITORIAL ARMY.

Maj. H. E. S. Richards, having attained the age limit, is retd. and retains his rank with permission to wear the prescribed uniform.

Lts. E. Holmes, F. A. Smorfitt, and F. C. Lewis to be Capts.

Lt. J. S. Fulton, late R.F.A. (Spec. Res.), to be Lt.

A. C. King to be Lt.

Supernumerary for service with O.T.C.—Capt. W. R. Martine, from Gen. List, T.A., to be Lt., supern. for serv. with Med. Unit, Edinburgh Univ. Contgt., Sen. Div., O.T.C., and relinquishes the rank of Capt.

ROYAL AIR FORCE.

The undermentioned Flying Officers are promoted to the rank of Flight Lt. : G. E. Church and E. J. Jenkins.

Flight Lt. G. J. Griffiths is transferred to the Reserve, Class D.ii.

INDIAN MEDICAL SERVICES.

Lt.-Col. A. W. C. Young retires.

Lt.-Col. G. W. Maconachie to officiate as Inspector-General of Prisons, Bihar and Orissa. Lt.-Col. C. A. Sprawson, Principal, King George's Medical College, Lucknow, has been appointed a Member of the Board of Public Health, United Provinces, vice Dr. Saiduz-Zafar Khan, resigned. Lt.-Col. W. L. Harnett has been appointed to act as Professor of Surgery, Medical College, Calcutta, and Surgeon to the College Hospitals, vice Lt.-Col. Sir Frank Connor, granted leave. Dr. Rai Satish Chandra Banerjee Bakadur, Assistant Prof. of Physiology, Medical College, Calcutta, has been appointed to act as Prof. of Physiology of that Institution, vice Lt.-Col. A. C. MacGilchrist, retired. Dr. H. S. Dube, M.O.H., Delhi, has been appointed M.O.H., Lucknow. Dr. J. Misquitta, officiating M.O.H., Lucknow, has been appointed M.O.H., Dehra Dun, vice Dr. Bishan Dayal, appointed Assistant M.O.H., Unao. Lt. J. T. Stuart has been appointed to the Subcharge of the Dermatological Ward, British Hospital, Secunderabad. Lt.-Col. W. T. McCowen to Command Indian Military Hospital, Dehra Dun. Maj. F. W. Hay to be 2nd in Command, Indian Military Hospital, Dehra Dun. Dr. Pareshchandra Guha, Civil Asst. Surgeon, has been appointed to hold medical charge of the Sadr subdivision of the Kamrup District. Lt.-Col. S. R. Godkin to be Officer Commanding, Indian Military Hospital, Jullunder, vice Capt. S. Dutt. Capt. S. Dutt to be 2nd in Command, Indian Military Hospital, Jullunder, vice Capt. D. R. Tharpar, vacated. Maj. A. A. Kernahan to be 2nd in Command, Indian Military Hospital, Peshawar. Lt.-Col. R. C. McWatters, Civil Surgeon, from Nani Tal to Agra. Dr. Hafizullah Khan has been appointed to be temporary Assistant M.O. on Cholera Research Work, vice Dr. Muhammad Abdul Hadi.

COLONIAL MEDICAL SERVICES.

Dr. W. C. Smith, medical officer, to be Medical Officer of Health, Nigeria; Dr. G. V. Allen, senior bacteriologist, Kenya, to be Bacteriologist, Institute for Medical Research, Federated Malay States; and Dr. H. C. Wilkinson, medical superintendent, King Edward VII. Memorial Hospital, Bermuda, to be Director of the Medical and Health Department, Bermuda.

The following appointments have been made during the month which ended Jan. 31st: Capt. J. M. Wallace, Bacteriologist, Trypanosomiasis Research, Uganda; Mr. H. M. Soar, Mr. D. W. McLaren, and Mr. F. Kane, Medical Officers, West African Medical Staff; Miss E. M. Stratton, Lady Medical Officer, Gold Coast; Lt. C. W. Hope-Gill, Medical Officer for Tsetse-fly Investigation, West African Medical Staff, Nigeria; Miss J. R. Mason, Lady Medical Officer, Gold Coast; Mr. W. H. Emslie, Medical Officer, West African Medical Staff; Mr. A. C. Lovett-Campbell, Medical Officer, West African Medical Staff; 2nd Lt. H. C. Curtis, Medical Superintendent, King Edward VII. Memorial Hospital, Bermuda; and Miss E. A. Robertson, Medical Inspector of Schools, Federated Malay States.

JOHN HUNTER:
BICENTENARY CELEBRATION.

The Bicentenary celebration in honour of John Hunter followed the programme issued earlier by the Royal College of Surgeons of England. During the week the Hunterian Oration was delivered at the College by Sir Holburt Waring and the Thomas Vicary Lecture by Dr. G. C. Peachey. These will be found in our columns. Demonstrations were given daily by the Conservator of the Museum, Sir Arthur Keith, and the Librarian, Mr. Victor Plarr, and the Festival Dinner was held at the College on the night of Feb. 14th, the President, Sir Berkeley Moynihan, presiding.

We publish below a series of letters of extreme interest to all students of medical history, and especially of the lives of John Hunter and his elder brother William. They have been entrusted to us for publication by Dr. Louisa Hamilton.

THE HUNTERS AND THE HAMILTONS:
SOME UNPUBLISHED LETTERS.

ANYONE who opens the calendar of the University of Glasgow will discover that its chair of anatomy was occupied by a dynasty of Hamiltons during the latter half of the eighteenth century. The chair was filled by Dr. Robert Hamilton from 1742 until 1756. He was the eldest son of William Hamilton, the minister of Bothwell, and was born in 1714. The manse of Bothwell and the farm of Long Calderwood, the home of the Hunters, were all within easy reach of the town of Hamilton, where the great Dr. William Cullen commenced the practice of medicine in 1736. Cullen was the friend and mentor of both the Hamiltons and the Hunters.

Turning again to the calendar, we find that a second Hamilton—Dr. Thomas Hamilton—occupied the chair of anatomy from 1757 until 1781. He also was a son of the manse of Bothwell, and the youngest brother of Dr. Robert Hamilton, whom he succeeded. He is a figure of importance to all students of John Hunter's history, for when John Hunter set out on horseback to join his brother William in London in September, 1748, being then in his twenty-first year, he was accompanied by a "Mr. Hamilton," who joined him at Bothwell. We know that Thomas Hamilton, the future professor, came to London in the autumn of 1748, and during the winter 1748–49 worked in William Hunter's dissecting-room—beginning his dissections at the same time as John Hunter. Sir Arthur Keith feels certain that it was this Thomas Hamilton who rode side by side with John Hunter for the 15 days occupied by the journey from Glasgow to London.

Dr. Louisa Hamilton, a living descendant of Thomas Hamilton, has just brought to the light of day two letters, written to him by his father, the minister of Bothwell, in 1748 and 1749, when he was studying in London. She also owns the 11 letters, most of them addressed to Prof. Thomas Hamilton, by his son, William Hamilton, who later succeeded him in the professorial chair at Glasgow.

Dr. Thomas Hamilton, after studying with William Hunter—who cited him as a witness when he accused Monro, of Edinburgh, of plagiarism in 1763—returned to Glasgow and succeeded to the chair of anatomy as the second Hamilton professor. Dr. William Hamilton succeeded his father Thomas in 1781, but overworked himself and died in 1790—at the age of 32. As a young man, this third Hamilton followed in the footsteps of his father—coming to London at the end of 1777 to study with both William and John Hunter. The charming and informative letters which he then wrote to his father and to his mother make up the greater part of the series which THE LANCET has now the privilege of publishing, through the courtesy of Dr. Louisa Hamilton.

Below is the anatomical dynasty of the Hamiltons, but the subsequent history of the family is interesting. The third anatomist professor left behind him two young boys; the elder became Sir William Hamilton, the pride of Scottish philosophy; the younger, Thomas, made his mark as a successful author. The great philosopher had three sons: the eldest became Sir William Stirling Hamilton, who made his name during the Indian Mutiny, and his son is the present baronet. A younger son, Hubert, was the father of Dr. Louisa Hamilton, who, with great generosity, has presented the letters here reproduced, with several others, to the Council of the Royal College of Surgeons, England. Dr. Louisa Hamilton, has been entrusted quite lately with a cabinet which she found to be packed with old family correspondence, among which she discovered the 11 now published for the first time.

If we take the letters in the order of their dates, they fall into three series. There are (1) the two letters written from the manse of Bothwell in the winter, 1748–49, to Thomas Hamilton in London; (2) there are 11 letters, published herewith, written 30 years later—1777–78—to Thomas Hamilton and his wife by his son William, just as he commenced his medical studies with the Hunters; and (3) three letters written by John Hunter (1783–88) when the great surgeon had reached the height of his fame, to his old pupil William Hamilton, when the latter was achieving success as professor of anatomy in the University of Glasgow. These three letters will, we trust, be published later.

SIR ARTHUR KEITH'S COMMENTARY.

Upon the whole correspondence, but especially upon the letters which follow, Sir Arthur Keith writes the following commentary:—

"What I have been hoping for in past years is that chance would bring to light letters written by Thomas Hamilton in the winter of 1748–49, when he was a fellow-student of the raw John Hunter, just freshly arrived from Scotland. I have not lost hope of

Rev. William Hamilton,
Bothwell Manse.

Robert Hamilton
(Professor of Anatomy, 1742–1756).

Thomas Hamilton
(Professor of Anatomy, 1757–1781).

William Hamilton
(Professor of Anatomy, 1781–1790).

Sir William Hamilton
(Philosopher).

Captain Thomas Hamilton
(Littérateur).

further letters, but in the meantime we have now two letters—not yet released for publication—addressed to him at this date by his father, the minister of Bothwell and owner of the estate of Airdrie. The first of these letters is dated 1748 and is directed to 'Thomas Hamilton, Surgeon, going to London.' Written in pencil on the outside, is a 'direction,' only imperfectly legible now, 'Dr. Ross at the red lamp, over the saddlers . . . further side of Leicester Fields.' This letter and the other begin, 'My dear Tom'—warm-hearted, fatherly letters, which I hope Dr. Louisa Hamilton will publish in full some day. In the meantime she has given us enough to be going on with. These earliest letters, written by an ancestor six generations removed from her, show us that the Rev. William Hamilton was an ancestor to be proud of.

"We now come to the second and most important series of letters, written in the winter of 1777–78, when the War of Independence was being fought in America. Prof. Thomas Hamilton was then 51 years of age and had occupied his chair during 20 of them. His son William, the writer of the letters, was at this time 19; at 17 he took his degree in arts at the 'College' of Glasgow, and then went to Edinburgh to study medicine for two years. His first letter is written from Bath on Nov. 23rd, 1777, and is addressed to his mother in Glasgow. We gather that his father, Prof. Thomas Hamilton, has been ill, and has been advised to seek treatment at Bath, whither his son had convoyed him before setting out to begin his studies in London under Dr. William Hunter. Almost the first sentence tells us we have made the acquaintance of a dutiful son."

LETTER Professor W. Hamilton to his Mother: Dated 23rd Nov. 1777:

BATH Novr. 23 1777.

My Dear Mother

We had this morning the pleasure of your Londonian Caravan (as Dr. Stevenson calls it) which made us excessively happy, and me particularly so to hear from your own hand that you were well. The praises you have bestowed on me in all my father's letters (which I have read) and those you were so good as give me in my own one, make me very proud. I must however say that what I have done does not merit them, as it was only an attempt to show my father and you the sense I had of the benefits I have received from you and repaying in a small degree the care and attention you have ever shown me, and even gives me pleasure to think that an opportunity has occurred that I might show my gratitude to you by being of use to my father. Ever since we set out it has always been my business to do everything I thought he would like and even to prevent his asking me and his will therefore has been entirely mine and from the time we left you which is near six weeks I cannot say my father ever has given me a sour or angry look much less quarreled me for any thing I had done. My Father I need scarce tell you is getting better every day and walks full as well as he did when he was beginning to go out with his last sore leg. He is perfectly independant of my assistance so much so that once or twice he has got up before me (I rose at nine) put on all his cloaths and gone to the pump room, and behold when I came to raise him he was gone, to my great amazement the first time. Mr. Trollope who is a vastly good kind of man and very aggreeable, tells my father he thinks in a month or two he will walk down to Scotland. He has got nothing done about his wig yet and I have been preaching up to him to get a new one. I wish you would second me. I did not go to the Ball on Friday. You ask me if I have been at the rooms, by that I fancy you mean the ball as at other times nobody goes but subscribers where they game or walk about there are few people go there but gamblers and old ladies (who bye the bye are mostly notorious cheats) and no party is played there under half crown whist or shilling quadrille, and in the card room at the Ball I was at a french duke and an english one were laying fifty and a hundred pounds on the hands—so great a sport of gaming is there at Bath. Novr. 24.—I delayed closing my letter till to day in case any thing happened worth writing you. Dr. Gusthart has called twice on my father and we are to dine with him on Thursday next. I wish your intelligence about Mr. Dennistowns coming to Bath may be true. I intend writing B. Brown next packet as this one will not hold what I have to say to him.

Believe me ever to be My Dearest Mother your
Dutiful son &c.
"W. HAMILTON"

P.S. Present my Dutiful compts. to My Aunt and Mr. Ritchardson and all my friends and acquaintances.
"W.H"

As I find I have enough of time and a great inclination to continue I will not end where I intended. I have been straying on the Banks of the avon to find Mr. Simkins muse (which it is with great probability supposed he left at Bath.) But as I have been unlucky in that attempt I shall take a plunge in the Bath and see what that may do as my father has sent Mr. R. a poem whether of his own or not I shall not determine. We have no news here the Quid nuncs of this place are abusing government and the indispensible for sending their expresses by vessels of no force for they make no doubt but the packet with the news is taken. The Bells are just begun to serenade us, some great man has arrived, it is one of the most infernal noises imaginable we are close by the abbey and to have 10 bells ringing chimes at once is disaggreeable beyond any thing you can conceive.

Adieu my Dear Mother.

"Young William Hamilton set out from Bath, where he left his father, the professor, to take up his medical studies in London on Dec. 16th, 1776. Before starting he wrote another letter to his mother which contains things worthy of record here, particularly his reflections on the young clergymen whom he found frequenting the gaming tables at Bath."

LETTER Professor W. Hamilton to his Mother: Dated 6 Decr. 1777:

BATH Decemr 6 1777.

My Dear Mother

We on Monday had the pleasure of your letter which made us I assure you very happy and we wait with impatience for your Sundays packet. My Father continues mending and except his bending the knee of his left leg a little when he walks, walks almost as well as ever he did, he is been perfectly well since I wrote you he does not find any sourness of his stomach since he came here, and eats pretty well. He drinks every day a pint (mutchkin) of porter and except that, never tastes any thing stronger than water or small beer, the Drs. have pressed him to drink a little wine which he has absolutely refused. We this day lost Mr. Trollope which I am very sorry for he was a very merry kind of man and was the life of our company. We have got a scotch Dr. from Exeter called Ker and a lady with him whose name I do not know they dined with us yesterday for the first time the old lady does not seem to want the gift of the Gab.

I go off for London the week after next I wish you had sent Mr. Young's direction. I wrote twice to George Reid to send it me but have heard nothing from him so that I must just stay in the inn in London till I can find some of my acquaintances out and get a room. I am sorry to hear the bad news from G. Burgoyne I hope Bob Buchanan or Billy Cullen were not with him besides many killed three entire regiments are cut off to a man, and the rest have laid down their arms. One of the gentlemen of our house gained the spray of Myrtle at Batheaston I saw his poem, it is indeed a very poor one not much better than our greek class productions and if this is the best what must the worst be, but in all these prizes favour goes farther than merit. I was at the Ball on Monday and at the play on Thursday I was amazed to find that the young clergymen here dance and play at cards in the public rooms but I find now that there are among them who are remarkable for gambling and every kind of vice and that there is but one part of a bucks character they carefully avoid and that is fighting which it is said they have a mortal aversion to; a man must have a pretty modest assurance to preach against vices on Sunday which have been his sole employment thro the rest of the week, this character I would fain hope is not a just one all I can say is I had it from a gentleman when I expressed my surprise at their openly playing at cards with people who seemed to be playing high. We saw Mrs. W. Bogle and her daughter to day they are both very well, Miss Bogle I think is very pretty. There no word yet of Mr. Houston so I cannot write my aunt to thank her till I get my buckles, if they come after I leave Bath my father will take care of them and bring them down as I shall have no use for them in London.

Decemr 7th. I am happy to tell you a piece of news which I hope true, my father has got acquainted with a gentleman in his situation from barbadoes and a surgeon, who told him that on friday last he dined in Bristol with a gentleman from Halifax who left it the 2 of Novr and who said the day before he left it dispatches had come there from G. Burgoyne who had pushed his way to Albany and where he said he hoped he would be able to open a communication to N. York and keep it up thro the winter, in this case the defeat of Burgoyne is a story made up by the three deserters

who were the only authority for it at Quebec, the gentleman says his friend is a man of veracity and the present bad news is not at all believed at Bristol. I was at the Abbey to day and heard the Bishop of Bath and Wells. Do not forget to read our Bristol news to professor R. I won't write it him as I know it would grieve his righteous spirit. My Father was out in a chaise with Mr. Trollope last week and he and I will go out some day this one, it is very cheap you have a chaise for 3 hours for 5 shillings. We have a flaming paragraph in the Bath papers of the honors shown Dr. Graham at Glasgow (he is now here and probably put it in himself,) they say he had the freedom of the town and a fine entertainment given him. I shall write you whenever I get to London. Dr. Gusthart would take no fee from my father. Present my dutiful compliments to my aunt and remember me kindly to all my friends and acquaintances. I need scarce subscribe myself (for you will know my hand) your dutiful son

" W. HAMILTON "

P.S. I have enclosed a letter for Miss Brisbane pray seal it up and send it as soon as possible.

" On Dec. 18th, 1777, he reached London at 3 o'clock, having seen ' Windsor Castle and passed thro Eton where the great school is.' The journey cost ' 3 pound, 7 shillings,' but he still had in his pocket, so he informs his father, ' two guineas and some shillings.' He had also ' draughts on Mr. Coutts.' On his arrival he had to put up at the ' Golden Cross,' Charing Cross because his two Glasgow friends, Mr. Young and Mr. George Reid, who were studying with the Hunters, had ' disappointed him,' neither having given him their ' proper direction.' "

LETTER Professor W. Hamilton to his Father: Dated 18 Decr. 1777:

My Dear Sir

I arrived here about 3 o'clock we dined at Hounslow: I went immediately on coming, to call on Mr. Young and Mr. Rix was so good as go along with me but could find no such person there the woman began to scold us for calling as she said she had had five people this very day enquiring for the same person we then tried No. 3 old round court and with the same success. I immediately determined to go to Dr. Hunters, and ask for the servant that waits at the class door and see if we could know from him the proper direction. We went there and he said he knew both Mr. Young and Reid and could be sure Mr. Reids direction, he came out and a young man with him (probably Mr. Cruikshanks[1]) who told me Mr. Reid had left that only a few minutes before and that he lived in Queens street east at the very end of it and I begged he would tell Messrs. Reid or Young if he saw them to night, if not to morrow morning that I wanted them and would be glad to see them at the Golden Cross which he said he would do. What made me think he was Mr. Cruikshanks was his asking if my name was not Hamilton as he said Mr. Reid had mentioned my intention of coming to town to him and asked if I had not letters for Dr. Hunter I told him I had, but had them not on me that I could not call then as I was just come to town but would do myself that pleasure very soon. We then went to Georges lodgings which were at least two miles off up across oxford road and beyond Cavendish square, he was not at home but they would tell him that I wanted him (if he came home soon enough) to supper if not to morrow morning. We came back to Oxford Road and took a coach to the Golden cross where I stay all night and Mr. Rix went home. Our journey came in all to about 3 pound 7 shillings. We saw Windsor castle to day and passed thro Eton where the great school is. I have still 2 guineas and some shillings. This is an amazingly large town and vastly well lighted for these are the only two observations I have had time to make yet. I hope you do not feel yourself lonely since I have left you. I hope we shall meet in a short time and by that time you will be in a great measure well.

I felt very much on parting with you tho for so short a time and the pleasure I shall feel on seeing you again is the only thing that makes me happy. I wished I had stayed a little longer with you that morning as the inn was locked up when I went and I and the driver (for the chaise just came at the same time) had to rap with our heels at the Gate for ten minutes. Present my compts. to all the family and Believe me ever to be your dutiful son and humble servant

" W. HAMILTON "

Golden Cross Charing Cross
LONDON
Decr. 18 1777.

[1] His guess was right. William Cruikshank, of Glasgow, became assistant to Dr. William Hunter in 1771, was at first an inmate of Dr. Hunter's house, a most accomplished anatomist, and later was friend and surgeon to Dr. Samuel Johnson.

" Note the letter, written to his father on the day of his arrival in London, Dec. 18th, 1777, is subscribed: ' Believe me ever to be your dutiful son and humble servant, W. Hamilton '—a subscription which modern fathers have seldom the pleasure of reading."

" Next day, Dec. 19th, he again writes to his father, informing him that he has obtained lodgings in Queen-street, Golden-square—close to Dr. Hunter's school in Windmill-street, and that it was necessary to ' direct ' to him, ' at No. 26 (brass plate) Queen's Street Golden Square.' "

LETTER Professor W. Hamilton to his Father: Dated 19th Decr. 1777:

My Dear Sir

I wrote you and my mother last night of my arrival in town and of my ill luck in missing Mr. Reid and Young. But just after I had sent off your letter Mr. Reid came in and supped with me. He advised me to board at first, as the people were apt to impose on a stranger he recommended me to a house where he had been recommended himself by Mr. D. Drummond and where he had staid six weeks but left it as he thought he could live cheaper. This morning he and Mr. Drummond called on me and we went and looked at it it is kept by two old ladies one a Mrs. Wilkes and the other her sister the terms are a guinea week for breakfast dinner tea and supper a neat little room and a light closet it is in the second storey and the only thing we must pay for besides is fire. I accordingly took the room for a month till you come to town. Mr. Young called on me to day and said this house he had marked out for me. It is in Queens street golden square and not farther from Dr. Hunters than you are from the pump room, as the street goes off windmill street opposite to his house. I have not waited on Dr. Hunter yet nor Mr. Hunter[2] I find it is not customary to dissect without attending the class and that I may take out a ticket now which will serve me till the same lecture in the next course as the Dr. has a month of this course to go thro. Mr. Hunter has only one set of lectures in the winter he only reads three a week so that if I enter now I will only lose four and twenty lectures and he does not finish till Aprile, this loss Mr. Young has offered to make up from his notes. But of these things I can write you more fully to morrow after seeing the Hunters whom I delayed calling on to day till I got money for one of my draughts as I must probably fee him just now, and Mr. Drummond is to attend me to Mr. Couts to morrow morning with whom he is acquainted. Mr. Cruikshanks I hear is very ticklish with regard to his wife and is even cast out with Mr. Young who he thought came too often to visit him, but this I beg you will take no notice of and burn the letter after you have read it, as he is a man who may be of great use to me, and whom I would not for the world disoblige. I find the rates are 3 guineas for attending the dissection room injecting for one course and five for two courses, bodies are at present difficult to get there are no whole ones in the dissection room at present. I went there along with G. Reid he introduced me to Cruikshanks. I have seen several Edinburgh acquaintances here and some Glasgow ones. In the house where I stay there is a room next mine a much larger one and at the same price which will do finely for you when you come to town. There is a lady and her son here in our house they are the only boarders, he is a clerk to the admiralty but is going to leave the house soon as he thinks it too far off. Direct to me at No. 26 (brass plate) Queens Street Golden square. What makes brass plate necessary is there being two numbers on the door 26 on the brass plate and 21 painted on according as you count from either end of the street.

Present my compits to all the family and Believe
me ever to be your dutiful son
& affectionate humble servant
" W. HAMILTON "

LONDON Decr 19
1777.

" In the next letter (Dec. 22nd) we are brought closely in touch with the Hunters, and are given a favourable impression of them, particularly of John. The newcomer, being the son of an old friend and companion, received the warmest of welcomes from John Hunter—as this letter shows."

[2] It may help readers if I remind them that in 1777 Dr. William Hunter was 59 years of age, had been established in the Great Windmill-street school for nine years, having first Hewson as his assistant, then William Cruikshank. John Hunter, who then lived in 42, Jermyn-street, was then 49 and had already given three courses of lectures on surgery, his first being delivered in 1773. (See Dr. George C. Peachey's " Memoir of William and John Hunter," 1924.)

LETTER Professor W. Hamilton to his Father: Dated 22nd Decr. 1777:

My Dear Sir

I would have wrote you on Saturday night but went to Dr. Hunters lecture and after the class I delivered my letter, the Dr. asked me and G. Reid who was along with me, to come and eat an oyster with him and we sat till eleven. The Drs class meets from half after one till half after three and on Saturday he had two meetings a night one from six till eight at which I was. This week we meet for tuesday and saturday twice a day he cannot meet at night on the other nights as Mr. J. Hunters lectures in his theatre then.[3] I went to day to fee the Dr., we give the money to Mr. Cruikshanks but he said he would speak to me about that tomorrow when he gave me my ticket. I offered him the dissection fee, but he put off the acceptance of it in the same way. The Dr. is particularly hurried this week as he is affraid his body won't keep, he is on Surgery just now, he explained lithotomy and passing the catheter to day. Bodies are vastly scarce at present some of the men have been taken up and tried but I hope this will be soon over. I waited on Mr. J. Hunter today he said he was vastly happy to see me and enquired very particularly about your health and both he and the Dr. begged their complts to you, he would take no fee from me and said he was happy to have it in his power to be of use to your son, he asked me to dine with him to morrow, and I go to his class to night at seven. The Dr. is an exceedingly good lecturer and vastly plain, he tells a story w grt. humour one or two of which he introduced into his lecture on Saturday. He was vastly chatty with us at supper, G. Reid and he seem to be very intimate he has breakfasted once or twice and dined with him I called at Couts & coy. on Saturday and got the draught paid I called on Bob Hamilton the same day and yesterday he called on me and pressed me to dine with him which I did and drank tea and supped. He boards with a gentleman and sisters who was purser on the Granby before him, he lives No. 73 cannon street in coming home which was about eleven I walked the length of St. Pauls, and then took a coach to which he was so good as convoy me He intends paying Bath a visit for two days in the beginning of January. He is not determined abt going out this year. He expects Mr. and Mrs. Arnot in town every day. He joins me in dutiful compts.

Believe me ever to be My Dear Sir
your dutiful son
" W. HAMILTON."

LONDON Decr. 22
1777.

P.S. I have seen St. Pauls the tower guildhall Bank of England the exchange moorfields the park St. James's queens pallace &c., but I have not been within St. Pauls or the tower yet. I have wrote my mother twice from London.
My Direction is No. 26 (brass plate) Queens Street Golden Square this I send in case you have not got my last.

" In the next letter we have Christmas Day recognised by the sending of 'the compts of the season,' the formula 'A Merry Christmas and a Happy New Year' not being yet stereotyped. The Dr. Black alluded to is no doubt the famous Prof. Joseph Black, a friend of both the Hunters and the Hamiltons. 'A Mr. Hume' is Mr. Everard Home, afterwards Sir Everard Home, Br. At this time he was 21 years of age and this is the first notice we have of him as a demonstrator in Dr. William Hunter's school. The spelling gives us the pronunciation of 'Home' in Sir Everard's own circle."

LETTER Professor W. Hamilton to his Father: Dated 25th Decr. 1777:

My Dear Sir

Your letter which I received on tuesday gave me real pleasure it made me happy to find you continued mending and did not need any assistance. I have taken this opportunity of wishing you the complts of the season, and to inform you of my being in very good health. I dined on tuesday with Mr. Hunter, along with a friend of Dr. Black's, his wife is a very pretty woman and a very aggreeable one. I yesterday got my ticket for the Drs. lectures and I feeed him and Mr. Cruikshanks for this course. I am affraid I shall not have much for my dissecting fee as bodies are not to be got and there are several before me. G. Reid has promised to get me one and John the servt who is a very necessary man to be great with, to whom G. Reid has introduced me and spoke for me has promised me the first that comes. The way I am to have it is this, if a body comes Mr. Reid (who has told the pupils he is going out soon to lift one) is to say he got it and of consequence it belongs to him and he is to chuse me for his partner and then we pay the Body to the servt. If a Body be difficult to be got I will see if I can get a head or a leg or an arm or any thing to be doing with. Besides Mr. Cruikshanks there is an assistant in the Dissecting room a Mr. Hume brother in law to Mr. Hunter, Mr. Young introduced me to him, and he seems to be a very good young lad. The Dr. is very near done with surgery and has the nerves still to show and some principles of Midwifery they say his course will not be done before the 20 of next month. Mr. Hunter began yesterday the application of his principles to practice he enter'd on abscesses in his lectures he does not describe any operations except the radical one for Hydrocele, which as it is somewhat odd I shall mention it, he makes an aperture in the cyst lets out the water and thro this opening which he makes pretty large he fills the cavity with pretty thick poultice and lets it stay there till the granulations force it out, in this way he says he has produced several radical cures. I have seen nothing lately worth mentioning. Messrs Reid and Young join me in Compts. to you.
Believe me ever to be My Dear Sir your dutiful son
" W. HAMILTON "

LONDON Decr. 25
1777.

" On New Year's Day young Hamilton wrote both to his mother in Glasgow and his father in Bath. These letters are among the most interesting of the series, revealing the writer both as a dutiful and loving son and one with a real sense of humour. The frank recognition of the employment of 'resurrection men' is interesting. In the letter to his father young Hamilton brings us again in touch with Everard Home."

LETTER Professor W. Hamilton to his Mother: Dated 1st Jany. 1778:

My Dear Mother

I had some days ago the pleasure of your letter which made me very happy as I was wearying much to hear from you. I would have wrote you since Thursday but have been close employed w the Hunters and the Dissecting room, which took up all my time as we had two lectures a day. I wish you the compliments of the season and many happy returns of the new year. I was very happy to find Mr. Wilson had won his plea it was but justice he should. I have no news to write you indeed I would be ashamed to write any after the way the last turned out. I have been through very little of London lately as my forenoon is taken up dissecting. I am now at no loss in the streets tho at first I certainly looked strange for a woman one day passing me looked me in the face and said Oh Sawney is this you. I was so angry at the speech that I could have struck her had she been a man and I had an excellent stick in my hand. What irritated me most was her finding me out to be scotch by my face when I thought I looked very like an englishman. This is the only affront I have met with since I came here indeed the scotch at present are rather respected as otherwise. I am vastly pleased with both Mr. Hunters lectures they are worth coming to London to attend, besides the benefit one derives from dissecting. I expect my father soon here so that he will be home by the first of february at the furthest, and very probably sooner. I would have wrote Mr. Richardson but have been so hurried I have not had time, but will do it this week. G. Reid is pretty well I believe I have not seen him to day. You must excuse this short epistle (scarce worth 8 pence).
Present my dutiful compliments to my aunt and Mr. R. &c.
Believe me ever to be My Dear Mother your dutiful son
" W. HAMILTON "

LONDON Jany. 1st
1778.

LETTER Professor W. Hamilton to his Father: Dated 1st Jany. 1778:

My Dear Sir

I gave me pleasure to find by your last letter that you continued mending and would see me soon. I would have wrote you long before now but have been kept very busy as Dr. Hunter has met twice a day for some time past and on the days he did not Mr. Hunter did, which takes up all the night and in the forenoon I am close employed in the dissecting room. I have got a leg and thigh from the body the Dr. showed the operations upon and I had it injected. I should have done it myself but Mr. Hume said, as it was rather putrid it was not proper for a first attempt as

[3] Dr. Peachey has drawn attention to the fact that John used his brother's theatre for only two courses—1776–77, 1777–78. After then the brothers quarrelled over their shares in the discovery of the true structure of the placenta, and John took a room for his lectures in the Haymarket.

I should be apt to burst the vessels, and he did it and very well injected it is. I have been employed upon it since sunday and I have not got to the knee yet. Bodies are vastly scarce two resurrection men are taken up and all the burying ground is watched so that I am affraid we shall have little dissecting for some time there is nothing but an arm and my leg in the dissecting room at present. I am exceedingly pleased with the Drs. and Mr. H.'s lectures, in Mr. Hunters last one we had his theory of the union of fractured bones which he says is done in three ways. The most common is by the lymph being extravasated and vessels shooting thro it from one bone to the other and making it cartilage, this cartilage is absorbed then, and cells are formed in it fit for the reception of the earth and it becomes bone, this is called joining by first intention. The second way is where the bones lye close together and inflammation comes on, then they unite by the adhesive inflammation. The third way and which is the one probably takes place where the cure of a simple fracture is tedious, the blood thrown out loses its living principle it is therefore an extraneous body and the vessels cannot shoot thro it which prevents the first way and by its being interposed between the ends of the bones it prevents the second way of union, nature then begins to get it absorbed and while this is doing granulations arise from both ends and meet together and in these first a callus and then bone is formed as was in the gelatinous lymph. Mr. Hunters course seems to be an exceedingly good one it principly treats the theory of Surgery and little or nothing of the practice. I have enclosed a letter for Mr. Hamilton I hope you will think it a proper one, you may put a wafer into it and send it to him.

As to St. Georges hospital I might go for a quarter but it is 10 guineas whereas a whole year is only twenty and Mr. Hunter told me if I had any thoughts of being here next winter it would be better to delay it at least till you came to town.

If I can remember right you began pumping on the 5th or 6th of November and you got 200 strokes at first, then after a week or two you had 300.

I shall conclude this epistle with wishing you a happy new year and many returns of it. Present my complts to all the family

Believe me ever to be My Dear Sir your dutiful son

" WILLIAM HAMILTON "

LONDON Jan. 1
1778.

I have enquired where the best bougies are made, you may tell Dr. Ker, it is by one Hodges and if he wants any I shall be happy to serve him and write me how to send them down.

" In the concluding letters of the series, two to his father, and one to his mother in Glasgow, we get in a few sentences glimpses of a busy student life, of old London, and of pleasant domesticities."

LETTER Professor W. Hamilton to his Father: Dated 3rd Jany. 1778:

My Dear Sir

I just now had the pleasure of your letter I own myself much to blame in not writing you, but it was entirely owing to my time being compleately filled up.

I have got all the thigh of my leg dissected I keep on all the muscles and dry them with the vessels I paid half a guinea for it and the injecting. I saw Bob Hamilton lately he known nothing of Mr. and Mrs. Arnots motions and has been expecting them for this some time, he spoke of writing you last sunday, he intended then to see you at Bath next week. I have not heard from Glasgow for some days I expect a letter on monday in return for a letter I wrote my mother. For these three or four days Mr. Cruikshanks has been showing the nerves he does it on just such a preparation as yours and which appears to have been kept for a considerable time.

I hope soon to see you in London and much stronger than when I left you I hope you have had no nephritic complaints, lately. G. Reid and Mr. Young with whom I sup to night beg to be kindly remembered to you. Believe me ever to be your dutiful son and humble servt

" W. HAMILTON "

LONDON Jany. 3
1778.

LETTER Professor W. Hamilton to his Father: Dated 6th Jany. 1778:

My Dear Sir

I this day received your letter and was sorry to find the cold weather pinched you. I heard from my mother on Tuesday last She said then she was going out of town for some days which I fancy has prevented her writing. We had a fire last night opposite to the head of our street we were all a good deal alarmed as at first we thought it was nearer, I had all my cloaths in my trunk in a few minutes and was ready to have carried it to the Dissecting room had it been as bad as we feared it was, it burned w amazing violence and the houses on both sides were saved more from accident than good guiding as the water was at first very scarce and the engines every now and then stopped for the men to drink porter. I was in the crowd from four till near six in the morning. I never saw as few people at a fire in my life. I should have wrote you after its happening lest you might be uneasy about me. I shall wait on Mr. Tait and speak to his nephew who attends Dr. Hunter some day this week as I hope my leg will be done in two days, and then I shall have more time in the forenoon. Present my complts. to the family and Believe me ever to be your dutiful son and humble Servt.

" W. HAMILTON "

LONDON Jan. 6.
1778.

P.S. I hope you got a letter from Dr. Baillie which Dr. Hunter gave me to direct to you about a week ago.

" W. H "

LETTER Professor W. Hamilton to his Mother: Dated 13 Jany. 1778:

My Dear Mother

I this day received the packet by Coll. Abercrombie for which I am much obliged to you. I was sorry to find by your letter that you was not well I hope long before this time you have got better of your complaint. I heard yesterday from my father who is vastly well I wrote you he had had a fit of Nephritis but had free of the stone which perhaps in some measure caused his other complaints. I expect to find him much better than even when I left him which is just a month to morrow. I heard all about Miss Reids marriage a week ago and wrote it to my father. I intend to have a slice of the play to night as I have been close employed either dissecting or at lecture since this morning till four when we dine and as I am light and in good spirits frm your packet. My Time is at present entirely filled up from half ten till half after one and frm that till near four at lecture for the Dr. lectures two hours always and some times more. I dine at four and frm five to six write then I go to the Drs. if there be an evening lecture till eight and on Mondays Wednesdays and Fridays Mr. H. meets at seven for an hour, so that you see I am pretty close kept. My Father is to be in town on Saturday night at which time we shall both write you. Present my dutiful complts to my aunt remember me to Mr. Richardson I shall answer his letter soon. Believe me ever to be

My Dear Mother your dutiful son and humble Servant

" W. HAMILTON "

LONDON Jany. 13
1778.

" The rest of the story can be found elsewhere, and much of it is in the ' Dictionary of National Biography.' We do know from other sources, particularly from letters written by Dr. William Hunter in 1779–80, that William Hamilton had a most successful period in London. He became an inmate of Dr. Hunter's house, then his assistant, and subsequently was given charge of the museum. Even when at Windsor Castle attending on the Queen, William Hunter, in a moment of leisure, wrote to the ageing professor of anatomy in Glasgow in the warmest terms of praise in favour of his son. In 1781, came the father's final illness; his son, William, left the Hunters and returned to Glasgow to succour his father and to become his assistant and then successor. Then followed his untimely death, in 1790, at the age of 32. A full account of his life was published in the *Transactions* of the Royal Society of Edinburgh for 1792, and the brightest part of that life were those two years he spent in London with the Hunters.

" Three letters which John Hunter wrote to him about patients are not reprinted here. The fact that Dr. William Hamilton preserved them shows the value he attached to them and to their writer. The letters speak for themselves—and they also speak on behalf of William Hamilton. The one point that one notes in these letters—as in the surgical literature of their period—is the attention and study given to hydrocele, an ailment which occupies so incon-

spicuous a place in current medical literature. Will appendicitis be relegated to a similar position in another century and a half?"

JOHN HUNTER'S EXPERIMENTS:
EVIDENCE OF AN EYE-WITNESS.

In her treasure-trove of correspondence Dr. Louisa Hamilton has discovered yet another letter which gives us quite new information regarding the point which John Hunter had reached in his discoveries in the year 1771—the year in which he and Anne Home were married. John Hunter was then in his forty-fourth year and had been a surgeon to St. George's Hospital for three years. The letter was written by Dr. W. Irvine in the summer of 1771 to his old friend Prof. Thomas Hamilton—father of the young man whose letters are reproduced above. Dr. W. Irvine and Dr. Thomas Hamilton had both studied under Dr. William Hunter; Dr. Peachey has drawn attention to the fact that Dr. W. Irvine was also cited as a witness when Monro secundus was accused by Dr. William Hunter of plagiarism.

LETTER Dr. W. Irvine in London to Prof. Thomas Hamilton, University of Glasgow.

LONDON, June 17, 1771.

Dear Sir,

You did not, I dare say, imagine to see my name at the foot of a letter of this date from London, but I have been detained, longer than I expected, about Dumfries and in Yorkshire, and have been so agreably employed here that I could not think of leaving it sooner. I have spent most of my time for the fortnight past with John Hunter, from whom I have received a great deal of what is new to me and which, tho' it may not be so much to you, cannot however be disagreable.

John Hunter has observed that if a wound be made into any cavity, if the edges are applied so as to be in close contact, they cohere, as on other occasions, by the first intention without suppuration; but if instead of applying the edges close to each other anything is put in to prevent their touching each other, an inflammation and suppuration is produced, which extends itself over the whole cavity into which the incision is made, how large soever the cavity may be. This he has found to be the case by many experiments and he thinks it may be applied to account for several things in surgery and to improve others.[4] Thus in the Hydrocele, when a wound is made in the scrotum thro' the tunica vaginalis, the water flows out, the scrotum collapses, the wound heals up and the water collects again. But if the wound in the scrotum, however small, is prevented from healing by any means such as a caustic, a seton, lint, sponge-tent, etc, destroying the tunica vaginalis, an inflammation attended with suppuration is produced, which extends itself over the whole surface of the testis and tunica vaginalis. Granulations spring from the testis, an adhesion between that and the scrotum is produced and the disorder is cured. He founds his method of operating on the hydrocele on this idea which he has performed above ten times, with all the satisfaction he could desire. The first time he performed it was on a Nobleman who went everyday after the operation to the house of Peers till he was cured He makes a small wound with a lancet in the most dependent part of the scrotum, so as to be free of the testis—of the size of a common bleeding. As little of the water is allowed to escape as possible. A sponge-tent is put into the wound so as to penetrate through the whole solid part of the bag. After, a proper bandage remains. The night after the operation, or next day, an inflammation which ends in suppuration—attended with swelling of the scrotum and pain in the spermatic cord come on, and the tent comes out of itself The water flows all out; pus flows from the wound. The parts are poulticed and all is well in three weeks. In some cases there was a considerable pain in the back, but scarce any fever. He has observed an inflammation and suppuration similar to this after tapping both the abdomen and thorax, when the wound did not heal up, and that he has dissected subjects who from this had a suppuration over the whole surface of the viscera in the abdomen or the thorax.

He has made several curious experiments on the blood, from which it appears to have something of a vital principle in it, so that all parts where it stagnates become vascular, which they would not otherwise do. This is confirmed by the following experiment. He made two ligatures on the jugular vein of a dog at a little distance from each other, so that a quantity of blood was contained betwixt them. The external wound was dressed and healed, and the dog, after living several months, was killed and upon examining the jugular vein a number of fine blood vessels were found in the cavity which contained the blood, arising from the two ligatures and running in various directions, into the cavity of the vein. The vein betwixt the ligatures was as large as at first, but no blood was found in it, the whole was a congeries of vessels. No vessels are ever found in the vein when it is emptied of its blood before the ligatures are made.[5]

Mr. Hunter has dissected many subjects upon whom the operation for aneurism had been performed.[6] No vessels were ever found in the artery betwixt the ligatures, though the lateral branches were greatly enlarged. From this[7] he accounts for the formation of Callous in a broken bone. A quantity of blood, thrown out on the two surfaces, becomes vascular. That this vital principle of the blood is retained after its separation from the body and sometimes after coagulation. This accounts for many surprising things which are every day being performed here, either by himself, or by others, and which if they came from any other body but one of his credit, could not be believed and which you yourself may accuse me of credulity for believing but I assure you I have seen almost all of them myself.

The pulling a diseased tooth from the head of a person and putting a fresh tooth from another in its place and this growing firm as the other teeth I have seen, and I am assured by John Hunter that these engrafted teeth get vessels and nerves and that this happens when a sheep's tooth has been grafted into a human head.[8]

The cutting of spurs from the heel of a cock and making them grow in his head, J. Hunter has often performed and has such cocks at present. Nay more, he has many hens just now into whose abdomen, when young, he has put the testis of a cock just separated from his body and this testis has got blood vessels and nerves from the part of the abdomen or viscera to which it is applied; has increased in size, yields a white liquor when it is cut into, but has not, as he had imagined, impregnated their ova nor altered their natural disposition.[9]

He is tomorrow to perform an operation of this kind before several gentleman. He has procured a couple of Jack Apes. Into the forehead of the one he is to graft the horn of a calf, and into the other the horn of a young deer and he proposes, as Gavin Pettigrew[10] has long complained of want of money, to send them to him and doubt not that by shewing them up and down the country he will make an immense fortune. The success of these operations depends on there being little time lost betwixt the separation of the part from one animal to the other, tho' it succeeds after being separated longer than can well be imagined.

Not to bore you I will mention one other thing out of a great number—Viz. male animals of the more imperfect kinds have small testes in the Winter and a very large in Breeding time. Mr. Hunter has preserved six male sparrows,[11] killed betwixt December and the middle of

[4] It is of interest to note that the problems which John Hunter—a Scotsman—was investigating in London during the "sixties" of the eighteenth century were solved by Lister—an Englishman—in Glasgow during the "sixties" of the nineteenth century.

[5] From this account we see that John Hunter was still searching for proofs of his belief that the blood is a living tissue. This belief began in 1756 as he watched the formation of blood islands in the developing chick. So far as we know Dr. Irvine's account is the first information we have of these ingenious experiments by Hunter on veins.

[6] Hunter's first operation on popliteal aneurysm, by tying the femoral artery, was done in 1785, 14 years after this letter was written.

[7] "This" we take to refer to the organisation of the clot in the ligatured vein.

[8] Hunter grafted human incisors in the combs of cocks. One of his specimens is preserved in the museum of the R.C.S. The union is effected by a vascular process which has grown from the substance of the comb into the open canal of the root of the incisor.

[9] The sole record of these experiments is a brief paragraph in John Hunter's lecture (vol. i., p. 391, Palmer's Life of Hunter, 1837). This passage runs: "Here is the testicle of a cock, separated from that animal and put through a wound made for that purpose, into the belly of a hen, which mode of turning hens into cocks is much such an improvement for its utility as that of Dean Swift when he proposed to obtain a breed of sheep without wool." Did Hunter ultimately find that the disposition of these engrafted hens did become changed? The extract from his lectures (1792) seems to suggest he did. Berthold, of Göttingen (1849) is usually supposed to have been the first to transplant with success the genital glands of fowls.

[10] This I take to be John Hunter's particular friend mentioned in letters written by him in 1761, when in Belleisle to his brother William in London. In these letters Pettigrew is asked to wait on Dr. William Hunter and obtain from him instructions regarding certain of John's private affairs. Apparently the experiments failed and Gavin Pettigrew remained poor.

[11] These specimens are in the Museum, R.C.S., and are still in a perfect state of preservation.

April. The one killed in December has testes not bigger than a small pin's head, the rest are gradually larger, the testes of the last, killed in April, are as large each as the top of your little finger. Same in frogs; remarkable in the skate which in Winter is not half-an-ounce and in summer near half-a-pound.

I have explained to Mr Hunter, in the best manner I could, your ideas about midwifery and have the satisfaction to inform you that he is entirely of your opinion, particularly about the menses and the decidua vera. He begs leave to add to your stock of facts some which he has found by his own experiments. A cow, free of her milk, after being in case, kept from the bull, has a show of blood every month after that, and frequently external. He has observed the same in deer, bitches, monkeys, etc.

I have mentioned to Mr Hunter your wants in the Waxline and he proposes to get them all for you by the time I come back to Britain.[12] Those I mentioned are a placenta, the . . . , another fœtus, twins, a glass uterine speculum(?). If I have neglected anything you mentioned to me I beg you would let me know of it. I have only seen Dr. Hunter once since I came here. I am to be with him tomorrow by ten to look over his Museum along with the Portuguese ambassador. It is a fine room and an excellent house.[13] The pictures in his back parlour cost him within a trifle of a thousand pounds at Stranze's sale. He tells me that in all his practice for these ten years he never used any instrument whatever in delivery; that he never attempts to deliver the placenta but allows it always to come away of itself, and never minds tho' the uterus close on it, for it will open again and be delivered, tho' he has seen it remain sometimes a day or two. This is always attended with some secondary pains.

John Hunter was very busy last day in making up a runaway private marriage between the son of a nobleman and the daughter of an Earl's brother. The whole is a secret yet. It is much against the will of the father of the young man, who knows, as yet, nothing of it. John[14] sent them to Scotland last Saturday night and as they had no money he had the dexterity to get hold of the money of the father of the young man and gave it to his son for a purpose of all others the most disagreable to him. It will make a great noise tomorrow or next day and you will soon see their names in the newspapers.

I thought I should be able to send you a book of Hunter's, the property of which he sold for 200 guineas and which, tho' quite printed and finished is not yet published. It is in quarto, an essay on the teeth about 150 pages in length, with about 16 copper plates but I could not persuade the bookseller.

I have wrote too long a letter but I thought many of the things would be agreable to you in consequence of which they were the more so to me. I have several others equally curious which you shall hear of again. I shall leave London tomorrow night and shall be in Paris if the wind serves, before you read this letter. I wish I could hear of you soon. A letter addressed to me to be left at the Scots College would come safe, as Pater Cummin is in Paris and desires his letters to be addressed in that manner. My best compts to Mrs. Hamilton.

I am yours

W. IRVINE.

Dr. Irvine's letter gives us a better picture of John Hunter at the height of his genius and energy than any letter we have as yet possessed, not even excepting the Jenner letters. There could not have come a more telling witness on behalf of the man whose bicentenary is being celebrated, and we owe to Dr. Louisa Hamilton a great debt for its publication.

[12] Dr. Irvine was on his way to Paris.

[13] This refers to Dr. William Hunter's House and School on Great Windmill-street. The building may be still seen on the left as one enters Shaftesbury-avenue from Piccadilly-circus. It is now used as the dressing rooms and stage of the Lyric Theatre (Peachey). William Hunter erected this building in 1768.

[14] John Hunter apparently did not give Dr. Irvine a hint of his own impending marriage. He and Anne Home were married in St. James, Piccadilly, Sunday morning, July 22nd, 1771, less than five weeks after Dr. Irvine's letter was written. The incidents related in this letter do not indicate any lack of money on John's part; yet it is said he sold the copyright of his work on the Teeth to pay the outlay involved by matrimony.

LONDON HOSPITAL SATURDAY FUND.—At a meeting of the board of delegates it was stated that there was an increase of £4665 over the previous total, and that £73,726 was available for disposal. St. Thomas's Hospital has been given a grant of £2425, the London Hospital £2185, University College Hospital £1995, and St. George's £1975.

THE THOMAS VICARY LECTURE
ON
THE HOMES OF THE HUNTERS.

BY G. C. PEACHEY.

IN his examination of Scottish intellect Buckle, the historian of civilisation, after reviewing the philosophical works of Francis Hutcheson, Adam Smith, David Hume, and Thomas Reid, and the scientific labours of Joseph Black in chemistry, of James Hutton in geology, of James Watt in mechanics, and of William Cullen in medicine sums up by saying: "I have now only one more name to add to this splendid catalogue of the great Scotsmen of the eighteenth century, but it is the name of a man who for comprehensive and original genius comes immediately after Adam Smith, and must be placed far above any other philosopher who Scotland has produced; I mean, of course, John Hunter." Buckle claims for Adam Smith the greater clearness and flexibility of thought. It may be so. But at the same time he places Hunter among the great masters of organic science in the same rank as Aristotle, Harvey, and Bichat. Among the scientific men of outstanding intellect selected by Francis Galton to illustrate his theory of the transmission of hereditary ability may be found in the first degree the name of John Hunter, and on a lower plane those of his brother William, his nephew, Matthew Baillie, and his niece Joanna Baillie. When Lavater saw John Hunter's portrait he exclaimed: "That man is a thinker," and it must be recognised that the really great men are not the great experimenters, the great observers, the great readers nor the great scholars, but the great thinkers. It is the progress of ideas which ultimately determines the progress of the world; John Hunter not only thought himself but he set men thinking.

This week we are celebrating the bicentenary of John Hunter's birth, and I wish to address you not upon the magnificent museum on which he spent almost the whole of his earnings, nor upon his perseverance in collecting the facts on which he based his original conceptions of disease; nor shall I attempt to explain the discoveries he made, and their bearing upon modern science. But I ask you to accompany me to the various dwellings of his brother and himself and to follow their footsteps round the London of the eighteenth century. It was the London of Gay and Hogarth, of Fielding and Smollett, of Johnson and Goldsmith.

The scene opens at Long Calderwood in the county of Lanark, where during the night of Feb. 13th, 1728, John Hunter was born, the tenth child of his parents, his father being then well on in years. (Fig. 1.) We know that John, his mother's darling, was a spoiled child, that he was wayward and idle in his early youth, and that he neglected his studies at the Grammar School in favour of country amusements. The three eldest children had already died—probably of tuberculosis—three more were to fall victims to the same disease, and four only of the family of ten come into our story. They were James, William, Dorothea, later the mother of Matthew Baillie, and last of all John Hunter. That the home life at Long Calderwood was brightened with the warmth of brotherly and sisterly affection is evidenced in the correspondence which passed between them: to each other they were Jamie, and Willie and Jockie, and Nannie and Tibbie.

After their father's death, though James was the eldest surviving son and had succeeded to the small estate, William Hunter became the dominant figure, and acting as parent and teacher to each of his brothers, and his nephew and heir Matthew Baillie, he and he alone was the architect of their success in life. It was William who bore the burden and heat of the day, and in the intensity of our admiration for the genius of John Hunter it is right that William should receive his meed of honour. James the elder

son was already studying for the law, in Edinburgh, and William, designed by his father for the ministry, matriculated at Glasgow, and studied theology there for five years. But by that time his religious opinions had changed and meeting with the great William Cullen he abandoned the Church, and for three years practised surgery with Cullen at Hamilton. These, he afterwards said, were the happiest years of his life, and he never spoke of Cullen without gratitude for his tuition and guidance. But William Hunter already had larger schemes and higher ambitions, and with the object of acquiring knowledge it was agreed between himself and Cullen that he should visit Edinburgh and London before settling down to country practice. The first part of the programme was completed at Edinburgh, and in the winter of 1740 he made his way to London by sea, and after a perilous voyage found himself under William Smellie's roof in Pall Mall.

This was William Hunter's first home in London. The house stood in one of the courts within the great gates of Carlton House, at that time in the possession of Frederick, Prince of Wales, and later the residence of the Regent. The exact position of Carlton House was the space between the present Athenæum and United Services Clubs, facing Waterloo-place. It was taken down with the adjoining property in 1826 and the only remaining vestiges are its columns which now front the National Gallery. William Hunter was particularly fortunate in his teacher, for Smellie was a remarkable man. Dr. Herbert Spencer, in his "History of British Midwifery," calls him the master of British midwifery, and describes him as the greatest of British obstetricians. Without powerful friends to help him, or the advantages of a hospital clinic, but by attending and teaching in the homes of the poor, and by sheer devotion to his art, Smellie raised himself to the foremost position in his profession. But in 1740 he had just arrived in London; he was only a humble apothecary and accoucheur, and had not as yet started the lectures which, though they excited the derision of his critics, brought fame to him, and credit to his pupils.

FIG. 1.

Long Calderwood, where William and John Hunter were born.

If I read William Hunter's mind aright, he realised quickly, while he attended the courses of Frank Nicholls in anatomy and Dr. Desaguliers on natural philosophy, that he had gleaned in ten months what he could from Smellie's private tuition in midwifery and that the time had come for him to take another step forward. But there is little doubt that the instruction he had received from Smellie during those ten months laid the foundation of much of his subsequent success, while the somewhat awkward and uncouth manners of his teacher—for Smellie's hands were said to be large enough to stretch boots in Cranbourne-alley—taught him a useful lesson, by suggesting to him the cultivation of the more courtly bearing which subsequently procured for him his appointment to Queen Charlotte. Armed with an introduction to Dr. James Douglas he made his way to Red Lion-square, where he was kindly received and invited to become Douglas's anatomical assistant and tutor to his son. With Cullen's generous acquiescence the Hamilton project was abandoned, and William Hunter took up his residence in Douglas's house. London had become his darling.

FIG. 2.

William Hunter's Residence and School of Anatomy in Great Windmill-street, W.

James Douglas was then nearing the end of a career which had brought him distinction as an anatomist, an obstetrician, and a bibliophile. He had gathered round him a superb collection of the editions of Horace, of which he issued a printed catalogue; he had described and demonstrated Douglas's pouch; Haller eulogised him: Pope has immortalised him.

> "There all the learned shall at the labour stand,
> And Douglas lend his soft obstetric hand."

Sojourn in Smellie's house had turned William Hunter's thoughts to midwifery and the importance of what Lord Chesterfield called "the Graces" was further brought home to him by his association with Douglas. Short as this was destined to be, the effect it produced upon his character was three-fold—it gave him a love of books, a zeal for anatomy, and a choice of obstetrics as a means of future livelihood. It was with Douglas, and after his

death with his family, that William Hunter and his brother James who, abandoning the law decided to follow medicine as a profession and to join his brother in London were to find a temporary home. That winter he entered St. George's Hospital as a pupil.

The voluntary subscription hospital movement was in its youth; St. George's itself was then only seven years old. The parent institution at Westminster had opened its doors in 1719, previous to which the only general hospitals in London—indeed in the whole of England—were St. Bartholomew's in Smithfield and St. Thomas's in Southwark. The westward march of the town was extending to the fields on which the May Fair had previously been held; extensive building operations were in progress, and there was need for further hospital service and accommodation. The House of Lord Lanesborough, then recently deceased, was ideally situated, standing as it did in the field facing Hyde Park, and over its front door his Lordship's sentiments:

> "It is my delight to be
> Both in town and Country."

And in the country it actually was, for the western turnpike gate of London was then at Clarges-street, though 50 years before, when Burlington House was built, its noble owner, when asked why he had erected his home so far out of town, replied that he was determined to have no buildings beyond him. So rapid had been the progress westward. From the windows of the hospital facing north little was visible but open country; just inside the park palings might have been seen the mound erected by Oliver Cromwell for the defence of London—on which the so-called Achilles statue now stands, and on the right, across Tyburn-lane, another known as Oliver's Mount from which Mount-street gets its name. Looking towards what is now Albert Gate might have been observed a small domed-brick building. It was known as the St. James Conduit House, and may be seen within the park railings opposite the Alexandra Hotel.

In 1736 the governors of the hospital purchased the freehold for £500, and a picture by Richard Wilson shows the hospital as it was when William Hunter entered it as a surgical pupil in 1741. It remained practically unaltered during the whole of that century while John Hunter was the chief ornament upon its staff, until, in 1824, it was rebuilt, when its front was turned towards the east. On its western side is to be seen "The Cottage," still so-called, which was John Hunter's home for a while, and continues to furnish quarters for the resident staff. The humble dwelling of the dairyman who supplied milk for the patients is seen in the picture to stand on the roadside, and the turret of Chelsea Hospital may be discovered in the distance. For Grosvenor-place was then a country lane, leading to Westminster and the Five Fields, now Belgravia.

Scarcely had the winter session opened in October, 1741, when the news came to William Hunter of his father's death, to be followed six months later by that of James Douglas, his patron and employer. It must have been a heavy blow. He had burned his boats in Scotland, his elder brother James had forsaken the law and joined him in London; the burden of responsibility for the whole family was upon him. "'Tis in vain," he wrote to his mother, "to say that neither Jamie or I is the loser by Dr. Douglas's death, but we are in a very good way." But he had courage and confidence in himself. Already he had formulated schemes for the future and had determined to become a teacher of anatomy himself, when he should have acquired sufficient knowledge and such a collection of preparations—then necessary for teaching—as would ensure him success. That winter William Hunter visited Paris, and attended a course of lectures on anatomy, but during his absence his brother James, broken in health by his assiduous attendance in the dissecting room, had returned to his Scottish home, to die of hæmoptysis.

Of the family of ten children four only now remained, and the expectation of life of the survivors was not promising. Again William Hunter found himself alone in London; he had succeeded on his elder brother's death to the small estate, but his mother, his two sisters, and his brother John were entirely dependent upon him. He was in his twenty-eighth year. But events were moving forward towards the launching of his long-contemplated scheme; the dissolution of the United Company of Barbers and Surgeons and the abrogation of the bylaw prohibiting the dissection of the human body outside their hall afforded him a favourable opportunity, and in October, 1746, he announced in the newspapers the commencement of his first course of lectures on anatomy. There were many others in the field before him; it was to be an uphill journey, but never was perseverance better personified than in the two brothers, William and John Hunter. The chosen venue was the Little Piazza, Covent Garden, the selection of which by him and other teachers was due to its central position. Covent Garden, once a fashionable quarter, was no longer in favour with society which was now flocking to the squares and Mayfair, and the purlieus of Old Drury and the new Covent Garden Theatre were given over to anatomists, actors, "starving poets," and men of letters. And now William's only surviving brother, John, tired of an idle country life, and hearing much of William's success, wrote offering to become his assistant, or if that proposal were not accepted expressing a desire to go into the Army. The offer was well received, and John set off on horseback for London. He was in his twenty-first year. On arrival he doubtless joined his brother, who was then residing in Mrs. Douglas's house in Hatton-garden, and for the next 12 months this was probably John Hunter's home. During that period he was initiated into the art of dissecting and proved himself so efficient that he was soon able to instruct his brother's pupils.

In the summer he went to Chelsea Hospital to learn surgery at the feet of Cheselden, the great surgeon of the time, returning in the winter to the dissecting room in Covent Garden, and when Cheselden succumbed to a stroke of paralysis John Hunter continued his studies as a surgical pupil at St. Bartholomew's Hospital. But William Hunter's private practice was growing with his reputation. For a few months he deputised as a surgeon man-midwife at the Middlesex Hospital, then recently established to serve the district of St. Giles, until on the opening of the Hospital for Lying-in-Women in Brownlow-street, Holborn, in 1749, he was elected to its staff. From his subsequent movements it appears to me that William Hunter had grasped the importance of the principle that, for the safety of the women he attended, his practice should not be conducted from premises which served at the same time for dissecting, and we find that he immediately took over a large house in the Great Piazza, Covent Garden, which henceforth became the residence of himself, his brother John, and their pupils. At the same time he retained the apartments in the Little Piazza for anatomical purposes. This was in the autumn of 1749, almost one hundred years before Semelweiss, in 1847, was led to attribute puerperal fever to the carriage of sepsis from the attendant to the patients.

In 1753, at the age of 25, while still in his pupilage, and after only five years of study, we find that John Hunter was elected a master of anatomy at Surgeons' Hall in company with Percivall Pott, over the heads of many of his seniors. No higher tribute could have been paid to his knowledge of anatomy. He had evidently made up his mind to follow surgery as his profession. In 1754 he entered as a surgical pupil at St. George's Hospital, and again in 1756 for a second course. The intervening summer is accounted for by his entry as a gentleman commoner at St. Mary's Hall, Oxford. That he did not go there of his own inclination is certain from his later remark. "They wanted to make an old woman of me or that I should stuff Latin and Greek at the University;

but these schemes I cracked like so many vermin as they came before me." The simile was apt if unpolished. In after years we find him writing in response to his irritating and venomous critic:—"Jesse Foot accuses me of not understanding the dead languages, but I could teach him that on the dead body which he never knew in any language dead or living." Foot's detraction was probably true—there is generally a strand of truth in the fabric of his hatred—but John Hunter was certainly right: as regards anatomical knowledge comparison between them would be fatuous.

John Hunter's choice of St. George's as his finishing school was of good purpose. At the chartered hospitals five years of apprenticeship to one of the surgeons was then necessary—it remained so till within living memory—whereas at St. George's there were no restrictions: the appointments were open, subject to votes and influence alone. Whatever the evils of the system, and they were many, without it surgery would not have had its John Hunter. In 1756 he was appointed resident house surgeon at St. George's, a stepping-stone to the staff, but he only retained the office for five months, anxious as he was to return to the dissecting room and complete the researches upon which he was engaged. The same year William Hunter moved to Jermyn-street, then a favourite medical quarter, gave up the apartment in the Little Piazza, and henceforth the house in the Great Piazza served as a residence for John and the pupils, and as the school of anatomy. In that house John Hunter continued his anatomical researches until, in the summer, he contracted pneumonia. He had completed 11 years in the dissecting room, and it was evident that he could go on no longer. With the family history before him, the warning was too definite to be passed over. Immediate and prolonged change of occupation was necessary. The period of convalescence was spent in the country, probably at Earl's Court, then a hamlet two miles from London, varied by occasional visits to town, until having applied for and obtained a commission as a surgeon on the staff of the Army, in the spring of 1761 he sailed for Belleisle, and there and in Portugal he served for a little more than two years.

Six letters from him to his brother have been preserved, and, characteristic of his temperament as they are, I am tempted to quote extracts from them. He was a bad sailor. "The sea plays the devil with me," he wrote, explaining his preference for land service; which by the way, at the same time, offered chances of better pay. Again he says, "Thank God I have succeeded in everything I have attempted, but my practice in gunshot wounds has been in a great measure different from all others, so that I have had the eyes of all the surgeons upon me, both on account of my supposed knowledge and method of treatment. My fellow creatures of the hospital are a damned disagreeable set." John Hunter was not altogether an easy person to get on with; neither he nor his brother could endure opposition; they quarrelled with others, and eventually quarrelled between themselves.

FIG. 3.

Earl's Court House: John Hunter's residence from 1765 to 1793.

Before he left England John Hunter had become a subscriber to St. George's, and there at a board meeting we first meet with him after his return. There is little doubt I think that he was then living in lodgings in Russell-street, Covent Garden, in the house of William Jones, the druggist, and that apart from his own dissections and researches he filled in his time by entering into some sort of professional association with Spence, the dentist, in Soho-square. But two years after his return to England he purchased the lease of three pieces of ground at Earl's Court, on which he proceeded to build a residence, and nine months later he became the occupier of a house in Golden-square.

Now we return to William Hunter. Long before his attendance in 1762 upon Queen Charlotte at the birth of a son, afterwards George IV., William Hunter having acquired a competency for himself and finding that his wealth continued to accumulate—he had already spent from £3000 to £4000 on his library—resolved to give up teaching anatomy. He vacated the Covent Garden premises, but yielding to the pressing calls of his pupils to continue his lectures,

in pursuance of a design he had in contemplation, he presented a memorial to Lord Bute, praying for a grant of land from the Crown on which he proposed to lay out £7000 in building a museum of anatomy and to present it to the nation. After long delay the offer failed of acceptance. Had it materialised the name of Scotland Yard, the chosen site, would have been associated in the public mind with the investigation of disease instead of crime. He took temporary premises in Litchfield-street, Soho, where his lectures were carried on until, foiled in his original design, he purchased a house in Great Windmill-street and commenced to build a theatre for himself. There from 1768 to his death in 1783 William Hunter, with a succession of distinguished assistants, Hewson, Cruikshank, and Sheldon, continued his courses of anatomy; after his decease the property passed to his nephew and heir, Matthew Baillie, until, in 1831, its doors were finally closed.

Of all the homes of William Hunter a part of this alone remains. The Little Piazza has long disappeared, the house in the Great Piazza was demolished and rebuilt about 50 years ago, the site of his Jermyn-street residence is now occupied by Prince's Hotel, and the Litchfield-street premises have been swallowed up by changing London. The red wall in Great Windmill-street, now the back of the Lyric Theatre, is the actual frontage of the old house. The front portico has gone, the area remains, and behind the railings may be seen the basement windows. Through the side entrance to the north the actors and actresses now pass to their dressing-rooms above, and a flight of steps is seen down which many a resurrectionist must have staggered under his ghastly burden. A few days ago I stood upon the stage of the theatre which is sunk below the level of the street, and which formed the actual floor of William Hunter's School of Anatomy.

When William Hunter vacated Jermyn-street in 1768 he handed over the remainder of the lease to his brother, and John Hunter with William's support was elected surgeon to St. George's Hospital. "When I solicited to be appointed one of the surgeons," he wrote, "it was not with a view to augment my income, either immediately by the profits of the hospital, or in a secondary way by increasing my practice, but to acquire opportunities of extending my knowledge that I might be more useful to mankind, not only by improving my private practice, but if I should be enabled to make discoveries even in the art itself." So did he write in 1793 in a letter to the governors. The appointment yielded him what he desired, attendance upon the living and examination of the dead; and, moreover, it enabled him to take pupils, one of the earliest and certainly the greatest of whom was Edward Jenner.

John Hunter's association with Jenner must have been a constant delight to each of them, and though we know little or nothing of the incidents of the two years of their companionship in Jermyn-street, a series of letters remains, wherein it is possible to trace the objects of Hunter's pursuits, the progress of many of his experiments and researches, in some measure the evolution of his thoughts and ideas. These letters bear testimony to the friendship which existed between them. The exact date of the termination of Jenner's residence in Jermyn-street is conjectural; he may or may not have been there in July, 1771, when, one Saturday evening, John Hunter wrote a letter to William: "Dear Brother, — To-morrow morning at eight o'clock and at St. James Church I enter into the Holy State of Matrimony. As that is a ceremony which you are not particularly fond of, I will not make a point of having your company there. I propose going out of Town for a few days: when I come to Town I shall call upon you. Married or not married, ever yours, John Hunter." Sunday morning at eight o'clock! The honeymoon was probably spent at Earl's Court, and the expenses of the wedding are said to have been provided by the sale of his

FIG. 4.

John Hunter's wife, *née* Anne Home. From the original by Masquerier.

lock upon the Teeth. (Fig. 3.)

From his marriage onward he made good use of Earl's Court. "For two or three months in each year," he wrote in 1775, "I am pretty much in the country, making experiments upon animals and vegetables"; sleeping there, coming to town in the morning, and returning to dinner. Around the house at Earl's Court, until its demolition in 1886, there lingered a halo of romance, the romance of John Hunter's otherwise turbulent life. It was there his honeymoon was spent, it was thither he fled from the town to his family, his fields, his trees, his ponds, and his animals. (Fig. 4.) Mrs. Hunter's apartments were upstairs, set apart from the lower regions where his study looked eastwards on the meadows beyond, so that he could keep a watchful eye on the "Den" where the wild beasts were kept. Round the house ran a cloister in which he kept the smaller animals used for his experiments, the entrance to which was by a subterranean passage and through which, in Frank Buckland's words, "Master John could wheel a tidy sized cart or truck and drag into his den anything from a Giant's body to a good-sized whale." This burrow opened not far from the stables, and Hunter could easily whip anything into the stable yard, down the burrow and into the area without Mrs. Hunter knowing anything about it. "I'll be bound," added Buckland,

remembering I am sure his own very similar domestic position, "I'll be bound to say, she used occasionally to lead him a life, and kick up a row if any preparation with an extra effluvium about it was left on the dissecting table"; and then calling upon his imagination Buckland pictures "The great John with his bright intelligent eyes, expressive eyebrows, and white hair curled behind, with his hands in his pockets, smiling his satirical smile" and saying, in allusion to Buckland's friendly offices, "So, Master Frank, there you are again; you found my remains in the vaults of St. Martin-in-the-Fields, and got me buried in Westminster Abbey, and now I find you actually in my house investigating my private skeleton-making copper?" In this copper was boiled the body of the giant O'Brien, whose skeleton is now in this museum. It is said that O'Brien had expressed an earnest desire to be buried at sea, but John Hunter had other intentions. At great expense the body was removed by night in a hackney coach, and having been carried through several streets, was transferred to Hunter's carriage and conveyed to Earl's Court. There the gruesome work was completed in the copper. It is said to have cost him £500.

FIG. 5.

Lady Campbell, John Hunter's Daughter. By Masquerier or Zoffany.

All John Hunter's animals, like their master, were devoted to science; his pigs were fed with madder till their bones were red; the spurs of his cocks were transplanted into their combs; his ducks were fed on sprats till they tasted of fish; his pigeons, turkeys, geese, eagles, owls, hawks, and his ostrich were used for all sorts of experiments. Wolves, jackals, and dogs; donkeys, mules, zebras, horses, and cattle were all mated where possible, and produced curious hybrids. In the middle of the field at the back was a pond, mentioned in the original conveyance of the property as the "Great Hole," in which John Hunter cultivated pearls from mussels, and where he kept his fish, frogs, leeches, and eels. In one corner was a mound, on the western face of which was a passage leading to three vaults, where he kept the dangerous animals.

Tales are told of his perilous encounter with a young bull, in wrestling with which he was thrown down, and of an occasion on which he found himself in a melee between two leopards, which had got loose, and several dogs. Unarmed he instantly laid hold of both the leopards, which fortunately submitted to be led back to the den and secured. And all around the grounds were the trees, which were stripped of their bark and bored with holes, in which he placed his thermometers, in order to carry out his experimental researches into the heat of vegetables.

The letters to Jenner who had settled in country practice at Berkeley, whence in the after years he was to issue his immortal "Inquiry into the Variolæ Vaccinæ," are full of allusions to Hunter's experiments. He keeps on asking for information as to the habits of the cuckoo and the breeding of toads. "If you collect eggs you should also collect the nests: I want a crow's nest, also a magpie's in the branches where they are built. I want a nest with the cuckoo's eggs in it, also one with a young cuckoo, also an old cuckoo. I hear you say there is no end of your wants." Again, "I thank you for your experiment on the hedgehog, try its heat and let me know the result. You do not mention a word about bats: Have you got the bones yet of a large porpoise? Is ever the salmon spawn seen after she has parted with it? I will take any specimens of fossils you may send me, or indeed anything else. What do you think of examining eels? Their sexes have not yet been found out, nor their mode of propagation." In the spring of 1778 he was asking for more hedgehogs: "All that you sent me have died, so that I am hedgehog-less." And then in one letter, after acknowledging the receipt of a consignment of various objects, he adds: "I was told the other day you was married and to a young lady, with considerable fortune. I hope it is true. What has become of your paper on Lead in Cider?" Jenner's reply is explained by Hunter's subsequent letter: "I was at a loss to account for your silence, and I was sorry at the cause. I was glad when I heard you was married to a woman of fortune; but let her go, never mind her. I shall employ you with hedgehogs."

I might continue almost indefinitely, for there is nothing that presents to us so truly John Hunter in his habit as he lived as these letters to Jenner.

At least during the summer months he used Earl's Court as a residence. When in London from six in the morning, or even earlier, until nine he was in the dissecting room; after breakfast he saw patients at his house, before going his round of visits. He dined at four, after which he slept for about an hour, and when not lecturing he dictated to Bell, his amanuensis, till one or two in the morning, leaving only four hours for sleep. The story goes that his friend Maxwell Garthshore dropping in one morning and finding him very busy remarked, "Ah, John, you are always at work." "I am," was the reply, "and when I am dead you will not soon meet with another John Hunter."

In 1770 he began to lecture privately to his pupils, and in 1775 the first public announcement of his lectures on the Principles and Practice of Surgery appeared in the newspapers. The two following years they were delivered at his brother's anatomical theatre in Great Windmill-street, but in 1778, at No. 28 in the Haymarket, then the picture gallery of Mr. Greenwood, and now the Haymarket Stores. These

lectures were continued with the assistance of Everard Home until the end came. There is considerable difference of opinion as to the number of the pupils who attended. Foot had heard that at some courses there were nearly 50; that in 1786 there were only 12, and in 1788, 18. There is a story that at one course there was only one pupil present, and that in order to be able to begin his address with the word "Gentlemen," Hunter ordered the attendant to bring in the skeleton. No authority is forthcoming for this tale, but all the evidence goes to show that Hunter's genius was unrecognised by his contemporaries.

William Hunter, who had provided each of his brothers with their start in life, who had given to John the opportunity of developing his talents in anatomy, and whose interest doubtless secured for him his Service commission, was no easy master. He had met with opposition to his claims of discovery, and after John's return from abroad the way of the brothers lay apart, though they remained friendly. In 1768 William's influence had procured John's election to St. George's. They were on brotherly terms at the time of John's marriage in 1771, and their relations were manifestly unbroken in 1777, when John was permitted to use the anatomical theatre in Great Windmill-street for his lectures. Before another year had passed some disagreement had occurred between them. I will not weary you with details of the quarrel; suffice it to say that it was the parting of their ways. The estrangement lasted to the end, and though John was permitted to render surgical aid during William's last illness, it is evident that he was not forgiven, for his name was not so much as mentioned in William's will, and everything, even Long Calderwood, was left to others.

Struck down by paralysis, as he was nearing his end William Hunter found words to say: "If I had strength enough to hold a pen I would write how easy and pleasant a thing it is to die." But in spite of the even placidity of the words, they carry with them a sense of disappointment, and of a readiness to depart.

> "Life was bitter. All the faces of the years,
> Young and old, were gray with travail and with tears."

Undoubtedly there was deep feeling on both sides; after their quarrel William had written to his sister, Mrs. Baillie, "I have lived to have my affections much disturbed by ingratitude"; and John, on reminding his pupils of the loss which anatomy has sustained by his brother's death, was obliged to pause and turn his face away, overcome by emotion.

I cannot omit a passing mention of William Cullen, without whose fostering care and interest anatomy would not have found a William Hunter, in the same way that without William Hunter's fatherly protection we should not be assembled here to-day to honour the memory of his brother. On William's death John knew that any worldly expectations he may have entertained were unfulfilled. The lease of the Jermyn-street residence was running out; his museum, the darling object of his life and dreams, required better accommodation, and he decided to purchase the lease of the Leicester-square house and of the premises behind it, which ran through to Castle-street. On the ground between the two he built a lecture theatre and conversazione room, and above them a museum and gallery. He is said to have spent £6000 on the lease and the building. The house in Castle-street provided quarters for his assistants, dissecting and preparation rooms, a printing press, and offices. It was there that his later works were printed.

In William Clift's MS. diary, which found its way in a mysterious manner to Sierra Leone and was rescued from a heap of rubbish, is a plan of John Hunter's house in Leicester Fields. Therefrom we learn the arrangement of the various rooms even to their furniture. On one side of the ground floor was Hunter's study, and on the other his afternoon bedroom. Could we peep into that study in the evening we should see Clift, sitting there from 7 to 11, or even later, copying into the volumes, from dictation, the slips of paper on which Hunter had jotted down his wandering thoughts. There would be the cabinets which contained them; there the sofa bed which Hunter occasionally used when suddenly attacked by angina. In the year before Hunter's death his household, there and at Earl's Court, numbered 45 persons, including his wife, his son, and his daughter.

John Hunter had been appointed Surgeon Extraordinary to the King, honours were showered upon him, and the death of Percivall Pott left him without a rival in his profession. But two troubles beset him. In the first place his health had given way; for some years he had been subject to attacks of gout in the feet, and in 1773 he had experienced a strange form of spasm which alarmed both him and his medical attendants; it was his first warning of the disease which 20 years later was to strike him down. In 1777 he had a second serious attack which lasted ten days, and, visiting Bath, Jenner went over and saw him there, and diagnosed the true nature of his malady. Henceforward John Hunter lived in constant fear of death, recognising the responsibilities which lay upon him for the support of a family totally unprovided for. He was earning as much as £5000 a year, but he saved nothing; everything over and above his establishment expenses, which were very lavish, the purchase of the Earl's Court freehold, and the lease and building of the house in Leicester-square, was swallowed up by his museum. The realisation of his responsibilities, aggravated by disease, made him irritable and impatient of opposition; an unfortunate characteristic of both his brother and himself which resulted in their quarrel.

The relations between him and his colleagues at St. George's, never good, had gradually become worse, until they burst out into active and bitter opposition. In professional knowledge and in mental capacity none of his colleagues on the staff was capable of comparison with him. Moreover, while owning himself a pigmy in knowledge, he felt as a giant compared with them, and he despised their apathy and lack of enthusiasm in the instruction of the pupils. In his endeavour to induce them to share with him the lectures, which he considered necessary, he was met on every occasion with excuses. One of his colleagues said he did not choose to lose any reputation he might have in surgery by giving lectures, and another confessed that he could not see where the art could be improved. In despair of inducing them to bear their share in the instruction of the hospital pupils, he informed them that in future he would keep for himself the fees of those students who entered under him, this being in direct opposition to the long-established custom that all the fees should be divided between the four surgeons. The Committee appointed to consider the matter at issue, without consulting Hunter, accepted the advice of his three opponents, and presented their findings to the board of governors, who thereupon decided against Hunter. Discourteous though their treatment of him, he bowed to authority: "If the proposals meet with the approbation of the Governors," he wrote, "it is my business as a servant of the charity to do the duty of my situation."

The curtain rises on the final scene. At a weekly board meeting on Oct. 16th, 1793, the question arose as to the propriety of the admission of two pupils who were not provided with the requisite certificates. Hunter spoke in their favour, and in the course of his remarks made some observation which one of his colleagues thought fit flatly to contradict. Hunter immediately ceased speaking, retired from the table, and struggling to suppress the tumult of his passion, hurried into the adjoining room which he had scarcely reached when, with a deep groan, he fell lifeless into the arms of one of the physicians who chanced to be present. At the next meeting of the board no mention was made of the tragedy; there was no vote of condolence. The absence of any official expression of sorrow connotes the bitterness of the hostility he had provoked. Such was the passing of John Hunter. It was suggested in the public press that his statue should be placed in St. Paul's by the side of Samuel Johnson, Sir Joshua Reynolds, and John Howard;

but in the event he was buried in the vaults of St. Martin-in-the-Fields attended by his relations and some of his oldest medical friends. No memorial was erected to his memory until, in 1859, Frank Buckland, after a tedious and prolonged search for his coffin, was instrumental in procuring for Hunter a last resting place in Westminster Abbey.

His personal property was dispersed; Earl's Court was sold, and after his debts had been paid a balance of some £1500 alone remained. The following year a petition was presented to Parliament praying that the House should make such allowance for the collections as, upon inquiry, should be thought fit; when Pitt is reported to have said: "What, buy preparations, I have not money enough to purchase gunpowder." Two years later a committee was appointed to examine and report as to the character of the collections, their advantages to education, their original cost, and the present condition and probable duration and preservation of the preparations. In the course of the inquiry it was elicited that they had cost John Hunter above £20,000 and near 40 years' labour, and Sir William Blizard gave it as his opinion that "every article bears the stamp of the finger directed by the judgment of a man superior, I believe, to anyone that ever existed in a point of practical anatomy." In 1799 the collections were purchased for £15,000 for the use of the public; the following year they were entrusted to the keeping of the College of Surgeons, and in 1806 they were moved from Castle-street to Lincoln's Inn Fields.

I have but few more words to say. In the brilliant sunshine of modern surgical progress, begun by Simpson with the introduction of chloroform anæsthesia, and culminating in the magnificent triumph of Lister, our eyes are apt to be blinded to the debt we owe to the perseverance and the genius of John Hunter.

"If you seek his Monument, look around!"

FESTIVAL DINNERS.

I.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE Festival Dinner was held in the College on the evening of Tuesday, Feb. 14th, Sir Berkeley Moynihan, supported by the Vice-Presidents and a majority of the Council of the College, presiding over a large company of guests.

After the loyal toasts the company drank in silence to the memory of John Hunter. The President then gave the toast of the guests, and, in reference to the high standing in divinity, literature, art, and law which some of those guests enjoyed, proceeded to point out that science was the only thing that had advanced during the 200 years that had elapsed since the birth of John Hunter. In painting, in sculpture, and in architecture, as in literature, immediate interests had influenced popular taste, but the results, he thought, would not elicit the profound reverence paid to the work of those who lived centuries ago. But whatever else was subject to change of opinion the union of hosts and guests at feasts was, is, and will be a perpetual feature in society, and the President liked to think of the company that might have assembled in that hall 200 years ago at a festival dinner, if such had been possible. Cheselden and Douglas of "pouch" fame might have been among the hosts, and John Locke, the philosopher, Peter King (Lord Chancellor, as Baron Ockham), his own ancestor, Bishop Berkeley, and Alexander Pope might have been among the guests, although Dr. Mead had put Pope on a diet of asses' milk. While coupling the toast with the names of Lord Birkenhead and Dean Inge, he alluded with great feeling to the presence of one other guest, a faithful friend and servant of the College for 50 years, Sir Frederic Hallett.

The Earl of Birkenhead, who professed profound admiration for surgery without any desire to make close acquaintance with individual surgeons, showed his admiration by being humorously severe on the position which, it seemed to him, was being taken up by modern surgery. Pointing to the claims, always admitted, on behalf of John Hunter, that he had introduced scientific surgery to the world, Lord Birkenhead wondered what the estimate of the successors of the surgeons of to-day would be when it was expressed 200 years later. Those successors might come to the conclusion that, while their own science was perfect, scientific surgery had only begun to-day, nothing before that date counting, and conclusions of that sort implied that during successive periods surgeons had not realised their own defects, nor, which was more surprising, each other's defects, being always of opinion that they were exercising with perfect skill their highly specialised calling. Lord Birkenhead concluded by pointing out that the building in which they were being entertained had gay associations, for it stood on the site of the house of Lord Rochester of frivolous fame, as well as of the old Globe Theatre.

The Dean of St. Paul's, in response, said that he envied the opportunities enjoyed by the modern surgeon for understanding the cases of their patients, and found that in comparison with the surgeon the clergyman was very badly equipped. He wished that it were possible for the clergyman to obtain X rays of the consciences of his patients, so that such offences as the employment of bad language at golf, the making of fraudulent returns for super-tax, and the shooting of foxes could be diagnosed, when the appropriate fines—say payments to the Chancellor of the Exchequer—could be enjoined. He paid a high tribute not only to the skill but to the extreme generosity of surgeons, by pointing out that he had close, though not personal, experience of the virtues to which he was testifying.

The toast of the Hunterian orator was proposed by Sir George Newman, who said that in asking the company to drink to the health of Sir Holburt Waring, the Hunterian orator, he did so with particular pleasure, because he knew how entirely Waring's ideals were associated with the purpose of the Hunterian oration—namely, to keep immortal the memory of John Hunter. A former President of the College, Sir Jonathan Hutchinson, had defined immortality in medicine as the keeping intact by successive links the chain of a great personality; others had given the claim of immortality to those who engendered seminal ideas, whose seed would be fruitful from generation to generation. Hunter's association of physiology with surgery, as exemplified in the work of Jonathan Hutchinson and of another late President of the College, Sir John Bland-Sutton, was an example of seminal ideas, and a great participant in those ideas was Sir Holburt Waring, as had been made clear by the terms of the Hunterian Oration which they had heard that afternoon.

Sir Holburt Waring, in a brief reply, made no claim for arrival at a perfected surgery such as had been criticised, but repeated the significant expression contained in his Oration that great developments in therapeutics might be expected from biochemistry.

II.

HUNTERIAN SOCIETY.

THIS Society held a festival banquet on Feb. 9th to celebrate the bicentenary of John Hunter's birth. Mr. A. Mortimer Woolf, the President, occupied the chair, and among the guests were the Lord Mayor of London and Lady Mayoress, the High Commissioner for India, the Presidents of the kindred medical societies, and Miss Hunter-Baillie, the last survivor of Hunter's line and his great grandniece. The menu-card was designed and executed by Mr. Thornton

Shiells, the well-known pathological artist, who presented the original to the Society in the course of the evening. It contained Reynolds's famous "snapshot" portrait of Hunter, framed in laurels, with a view of the old home at Long Calderwood above it and one of the Earl's Court "menagerie" below. On either side were drawings recalling some of Hunter's classical experiments, and on the back was the device of a hedgehog. Models of the hedgehog and of the glass jar containing a hen's head with a cock's comb were cunningly executed in ice and exhibited by the chef.

After the loyal toasts had been honoured, Sir Arthur Keith was invited to express his opinion of the menu, and taking its design as his text he related many interesting details of Hunter's life. He pointed out the window of the room where the great man had been born, and the "corbie steps" from which he must have mounted when he rode to London, accompanied by his friend Hamilton. Sir Arthur Keith spoke of his delight at the discovery of the Hamilton-Hunter letters, and mentioned that Dr. Louisa Hamilton had the letters with her in the room, but that he would shoot anybody who tried to get possession of them! He regretted the omission, in the sketch of the house at Earl's Court, of the flock of 15 geese which Hunter had kept to supply him with eggs of a convenient size for his embryological studies. This house had been Hunter's "week-end cottage"—a week-end cottage of forty rooms being no new thing apparently—and the greatest experimental garden in Europe. After his death it had been a gambling den, but had been reclaimed to medicine as a mental hospital.

In proposing "The Hunterian Society," Sir Douglas Hogg, the Attorney-General, drew an eloquent and witty parallel between the duties and aims of the law and medicine which, with the Church, he called the three great healing professions. Congratulating the Society on its international scope, he pointed out that Hunter, through his pupils, had been the founder of scientific medicine in the United States. Between the speeches an unusual feature was community singing, led by Mr. J. Batten, who, as Mr. Mortimer Woolf pointed out in replying to the toast, would in the days of the barber surgeons have been rewarded with a shoulder of mutton and two rabbits.

Mr. W. E. Tanner, secretary of the Society, in proposing "The Lord Mayor and Corporation of the City of London," expressed the Society's gratitude to Sir Charles Batho for identifying himself with their aims. Their association with the City had been a vital factor in their success in carrying on a profitable interchange of ideas with other professions. Sir Charles Batho, in reply, explained that he and Lady Batho had set their hearts on doing all they possibly could for the hospitals of London. "The Guests and Kindred Societies" was proposed by Dr. W. Langdon Brown, and answered by Earl Russell, Sir John Rose Bradford, and Sir Ernest Wild. Sir John Rose Bradford compared Hunter with Harvey, the one a spring and the other a reservoir of science, and referred to Hunter's part in founding the great English schools of medicine. Sir Ernest Wild compared him with John Howard, who had taught the world that even criminals were human, while Hunter had taught it that even surgeons could be humane.

DEATH OF COLONEL CATHCART GARNER, C.M.G., C.B.E.—Colonel Garner, whose death took place at Southsea on Feb. 4th, was born at Dumfries, the son of William Hastings Garner, F.R.C.S., and was educated at St. Columba and Trinity College, Dublin. He graduated in medicine in 1885, entering the Army Medical Department in the following year. He was seconded for service in Egypt, and became deputy director-general of public health administration in Cairo. He rejoined the army at the outbreak of the war, and served in Gallipoli and Egypt, finally becoming assistant director of medical services in Palestine. His decorations were many, including an officership of the Legion of Honour and a Knighthood of Grace of the Order of St. John. His published work chiefly dealt with local epidemics of infectious disease.

Special Articles.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

The Galashiels Enteric Outbreak.

THE enteric epidemic in Galashiels, a town of some 17,000 inhabitants, began early in January. The cases now number about 100, but the peak is passed and it is reported that the incidence has fallen to one case a day. The origin has not yet been determined, but investigation in detail is proceeding. The type is para-B. Whether milk or water be ultimately found to be the origin, the outbreak has all the features of a sudden, temporary infection of a common medium; for the cases, at the moment, show a random incidence over the town. In the administrative stress of accommodating the abnormal numbers detailed investigation takes time. A medical officer of the Scottish Board of Health is in daily touch with the medical officer of health, and it may be assumed that no source of probable infection will be left uninvestigated.

Edinburgh Royal Maternity.

In 1927 the intern cases numbered 2094, extern 474, Leith Branch 549, total 3117. This is almost the same as in 1926. The antenatal and postnatal clinics show 10,002 visits as against 7395 in 1926. It is gratifying to see that the excellent "John William Ballantyne Annexe" is so much appreciated. Antenatal work will soon be a very substantial section of the "Simpson's" activities. One wonders more and more why poor Ballantyne had such an uphill fight for some 25 years to secure an effective beginning. Everyone wishes the voluntary hospitals well, but their proper expansion is slow. All the greater credit to Dr. Nasmyth, for under his generous chairmanship the relative pace has increased enormously.

Edinburgh Royal Infirmary.

The pressure on bed accommodation continues to such an extent that expansion is urgent. In 1927 the number of in-patients was 18,713; of out-patients, 61,582. This means an increase of 1689 in-patients. Yet, at the end of the year, the waiting-list stood at 1995, of which 1203 were surgical. Obviously the policy of "coöperation" sketched out more than once by the Secretary of State for Scotland and made explicit in his recent interview with the British Hospitals Association, has something very substantial to rest upon at the "voluntary" end. The cost per bed for 1927 was £155 12*s.* 9*d.*, an increase of £12 2*s.* This is largely due to the new Radiological Department, which may require separate accounting arrangements. This department is gaining steadily and rapidly in favour, as was to be expected. It is interesting, too, to note that for the 55 children in hospital, "Certified Milk" was provided at a cost of £450 per annum. Four dental surgeons have been added to the staff—a wavelet, no doubt, from the rising tide of "dental benefit" and dental demand generally. Donations from health insurance approved societies amounted to £5948. This is good as far as it goes; but why, after 16 years, the approved societies should remain so miserly in their donations is a mystery, when it is well known that, like every other large hospital, the Royal does a very great deal among "insured persons." It looks as if little may be expected so long as the present failure of societies to "pool" or coöperate continues.

Voluntary Insurance.

In Scotland, as in England, the contributory scheme of old-age pensions at 65 has stimulated "voluntary insurance" under the National Health Insurance Acts. "Old age" is a "certainty," in most minds; sickness and death before 65 is, in the same class of mind, only a "risk" and transient. Whatever the psychology,

voluntary insurance in the pre-pension days was a relative failure; even at present it is a small factor in a large scheme; but it is a symptom of the immense interest provoked by the scheme, which, however, necessarily leaves many gaps. Recently Mr. Stirling, a member of the Scottish Board of Health, expounded to the Incorporated Accountants' Students' Society the whole pensions insurance scheme and the advantages of voluntary insurance. He envisaged that, with the passing of the years, National Insurance would become more and more an accepted and normal feature of our social system, and that professional workers would, on ceasing to be compulsorily insured, elect to remain within the scheme as voluntary contributors.

The Lord Provost's fund for the building and endowment of the new Royal Infirmary has almost reached £284,000 of the £400,000 asked for.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Some Paris Health Statistics.

FRANCE occupies an unenviable position in international tables of birth- and death-rates. As a French writer has put it: "One is born there less frequently and one dies there more frequently than in many other countries comparable in other respects." It is pleasant, therefore, to find that the health record of Paris is, on the whole, good, being considerably above that of the country as a whole. This is all the more surprising in view of the overcrowding which exists in certain quarters of the capital, but there is no doubt that Parisians benefit very largely from the plentiful supply of parks, gardens, and open spaces which "la ville lumière" possesses, and that this neutralises to some extent the bad housing conditions. The death-rate in Paris in 1925 was 14·7 per 1000 population, compared with 18·1 per 1000 for the rest of France. This is a great improvement on previous figures; in 1912 the Paris death-rate was 16·3, and in 1900 19·6. The birth-rate in 1925 was 16·2 per 1000, almost the same as in 1912, although the general birth-rate has fallen considerably. Compared with other European cities, Paris has a higher death-rate than London, Brussels, Amsterdam, or Vienna, but a lower one than Budapest, Madrid, and Milan. Its birth-rate is higher than that of Brussels, Vienna, and Budapest, and about equal to that of Milan. An analysis of the causes of death shows a decrease in most diseases since 1900. Deaths from cancer have increased, and those from diseases of the heart and kidneys remain about the same. The death-rate for typhoid fever has fallen from 0·35 per 1000 in 1900 to 0·04 in 1922, for pulmonary phthisis from 3·83 to 2·37, for respiratory diseases from 3·50 to 2·41, and for infantile diarrhœa from 0·96 to 0·31. Deaths from violence (including suicide) have fallen from 0·64 to 0·28 per 1000 population, so perhaps the Paris apaches are a dying race, but it is curious to reflect that many more people die from violence than they do from measles or diphtheria (both 0·05 per 1000). Has the violent Paris taxicab anything to do with this? Infant mortality in Paris is lower than in Brussels, and about the same as that for France as a whole (9·7 per cent.), but this figure is nothing to boast about.

The direct influence of open spaces on the death-rate is seen in a comparison of the different arrondissements. The Invalides (VII^{e}) has a death-rate of 7·7 per 1000, the Champs Elysées (VIII^{e}) 6·8, the Porte Dauphine (XVI^{e}) 7·5, the Plaine Monceau (XVII^{e}) 9, but the Saine Merri quarter (IV^{e}) jumps to 17·8 per 1000, the Salpêtrière (XIII^{e}) to 30·5, Montparnasse (XIV^{e}) to 29·7, and Belleville (XX^{e}) to 18·2. A glance at a map will show the relationship between these figures and the situation of parks and open spaces. On the whole Paris is keeping abreast of other large European cities in its fight against bad housing conditions, overcrowding, and consequent spread of infection. The post-war invasion of some quarters of the city by large numbers of foreign immigrant workers has been met by an increase in the number of dispensaries where out-patient treatment can be obtained, and serious efforts are now being made, under the impulsion of the Office National d'Hygiène Sociale, to raise the public health services to the level of modern standards.

Strauss has pointed out to the Académie de Médecine that some 69,000 deaths are preventable in France, chiefly those of infants and those due to tuberculosis. A committee has been appointed to examine the problem.

Hospital Extensions.

The obstetric service at the Hôpital Boucicaut, which has greatly increased, requires enlargement and improvement, which have been provided, together with a radioscopic laboratory.

The Paris Municipal Council has just voted funds for the erection, at the Hôpital St. Louis, of a pavilion for the care of leprosy and of a dispensary for venereal cases. The laboratory, which has proved of special value in the study of parasitic diseases of the skin, is receiving an increase of 6000 francs in the fund devoted to its operation.

The radiographic service at the Salpêtrière has increased to such an extent that it requires enlargement and additional personnel.

The sum of 188 million francs has just been allotted to the repair of four of the larger Paris hospitals, whose condition has become urgently in need of improvement. The hospitals in question are the Broussais, Bichat, Beaujon, and Charité.

Inauguration of an International Medical Centre.

This new enterprise was opened on Dec. 20th at 10, Avenue d'Iéna, Paris, in quarters occupying a part of the house formerly owned by Prince Roland Bonaparte. The new centre places a library, information bureau, reading rooms, and other aids at the disposal of the members, and constitutes a medical club for meetings and interchange on medical questions.

The Association for Developing Foreign Medical Relations, of which Prof. Henri Hartmann is president, is proving of great value as an agency for the extension of French medical interests abroad. Monsieur Charlety, rector of the University of Paris, is assuming an active share in the labours of this organisation. Profs. Achard and Hartmann will supervise a medical exposition to be held next March at Athens.

Plans are maturing for an elaborate celebration next spring of the twenty-fifth anniversary of Charles Nicolle's directorship of the Pasteur Institute at Tunis. A committee is arranging for a fête and for the striking of medals. Those wishing to attend the ceremony at Tunis will be granted reduced fares and travelling facilities, of which particulars may be had from Dr. F. Gérard, 100, rue de Serbie, Tunis.

Deaths of Medical Men.

Besides Prof. De Jong, whose death at the early age of 45 years is a real loss to pharmacology, the medical circle in Paris has just been robbed of Patein, member of the Académie de Médecine; Keller, radiological chief at the Bicetre; Leblanc, hospital physician; Danysz, laboratory chief at the Pasteur Institute and originator of the well-known vaccine, and Henneguy, member of the French Institute and of the Académie de Médecine.

A recent issue of the *Paris Médical* was devoted to the biography of Prof. Gilbert, its founder and first director, and contained a number of articles on different aspects of the man and his work.

The surgical prize awards of the Société de Chirurgie consist of the Edouard Laborie prize of 1200 francs, awarded to Ménégaux, of Paris, for his study of a comparison of surgical and radiant treatment in lingual cancer; the Duval-Marjolin prize of 300 francs, bestowed upon Barret, for a clinical and therapeutic

discussion of extra-uterine pregnancy; and the Ricord prize of 300 francs, granted to Vanlande for investigation of acquired non-neoplastic stricture of the small intestine.

A special conference for the discussion of social defence against syphilis will be held at Nancy from May 29th to 31st. The questions on the agenda are: (1) frequency and cost of syphilis; (2) education of the public; (3) antisyphilitic dispensaries; and (4) organisation for combating congenital syphilis.

The prevention of diphtheria has proved both popular and effective in France. The vaccine generally employed is the Ramond anatoxin, which is atoxic but actively antigenic, and prepared by treating diphtheria toxin with formaldehyde. The French supply is nearly exhausted and the deficiency cannot be met by the Pasteur Institute for at least two months. Results have been especially extensive and excellent in the fifth arrondissement of Paris.

The French Government has announced the organisation of an extensive expedition to combat sleeping sickness in French Equatorial Africa. The expedition will consist of a corps of 33 experts, working under the direction of the Paris Pasteur Institute, and will especially study eradication of the tsetse fly. Special salaries, exemptions from taxation, and prizes for meritorious work are being provided in the campaign, which will cover a minimal period of five years.

Marage has just presented to the Académie des Sciences an interesting study on Beethoven's deafness, which was seemingly due to lesions of the internal ear only. Diagnosis was based upon tinnitus preceding the deafness, initial deafness for sounds of high pitch, and rapid progression of the loss of hearing.

Gosset, surgical chief at the Salpêtrière, was elected to membership in the Académie de Médecine on Jan. 24th.

UNITED STATES OF AMERICA.

(FROM AN OCCASIONAL CORRESPONDENT.)

Newspaper Medicine.

THE tendency for medical men to supply popular articles to the press is increasing. Lately the Academy of Medicine of Toledo, Ohio, has gone quite seriously into the business. They feel by this means advertising propaganda and the evil effects of cultist literature are counteracted. Articles have for some time been furnished gratis to various publications in the State and even outside Ohio. The Academy of Medicine is now preparing to distribute articles on a business basis. The following extract from an article published in the *Toledo Times* may have a double interest to British medical readers, since it not only illustrates the style of newspaper medicine, but will enable them to see themselves as they are seen by American colleagues:—

> More than 15 million people are compulsorily insured in the British isles, and after 14 years of unhappy experience both patients and doctors find the system very unsatisfactory. Some of the reasons for the failure of State medicine in England are: (1) It is an enormous expense to the Government. (2) It encourages perfunctory, inferior service, and inadequate medical treatment. The doctor receives compensation whether his services are good, bad, or indifferent. (3) It develops large numbers of neurotics who run to the doctor with every conceivable ailment, whether real or imaginary. It encourages costly malingering. (4) Public dissatisfaction has resulted in an enormous increase of quackery and cultism. (5) The people lose the right to select their own doctor. (This one item should condemn State medicine for the United States.) (6) It undermines medical initiative, does not recognise merit, forgets the stimulation of medical research, and tends to paralyse medical progress. (7) It discourages the ambitious youth from the study of medicine and leaves the field to men of inferior talent. In America we cannot afford to retard the progress of medical knowledge by Government control. A scheme, such as the "panel system," is full of restrictions, swamped with intolerable "red tape" and graft. . . .

Spray Coating.

The process of finishing has been revolutionised in the last ten years by the development of the compressed air spray. This method of applying paint or enamel is not without its hazards to health. The National Safety Council, taking cognisance of these risks, appointed a strong committee representing manufacturers, federal bureaux, and national organisations, which has made a careful investigation and has submitted a majority report. Definite evidence was found of poisoning from benzol from the use of benzol lacquer sprays, of lead poisoning, and of silicosis. The evidence of the latter was the least conclusive, being dependent on the interpretation of radiograms; thus of nine workers who had been employed in the spraying industry for more than three years two gave X ray evidence of silicosis, and one of probable silicosis. The committee concludes that an exhaust velocity of 200 linear feet per minute offers reasonably effective protection against benzol. Ordinary respirators are ineffective, but a special type known as a positive pressure respirator, under which the face is bathed in pure air above atmospheric pressure, is found to be effective when properly designed and operated. Periodic medical examinations are recommended to be made at frequent intervals. The content of sprays in benzol, lead, and silica should be reduced to and held at a minimum.

The Common Cold.

Interest in the ætiology of the common cold has been once more revived through the recent gift of $195,000 to the Johns Hopkins University by the Chemical Foundation for research on this subject. The fund is named the John J. Abel Fund in honour of the professor of pharmacology, and will be administered by professors from the School of Hygiene and the School of Medicine of the University. A somewhat novel line of research was recently opened up by the papers of Drs. Volney and Cheney to the American Public Health Association. Dr. Cheney finds that colds are not contagious; he failed completely to inoculate healthy persons with secretions from acute colds. On the other hand, he finds constantly in sufferers from colds a decrease in alkali reserve and an increase in bicarbonate tolerance. He is able to induce all the symptoms of a cold by induction of artificial acidosis through the administration of ammonium and calcium chlorides, and he can regularly abort colds in the early stage or cure them in a slightly later stage by alkali therapy. Needless to say, the audience did not accept this thesis without protest, and it is improbable that any large proportion of them were convinced; but the suggestion is perhaps worthy of investigation.

MEDICINE AND THE LAW.

A Dilemma in Loyalties.

AN action brought last week at Chester Assizes against two medical practitioners illustrates the continuous exposure of the medical profession to actions for damages based on allegations of negligence. A patient was suddenly seized with pain, a doctor was summoned who formed the conclusion that the trouble was due to a burst gastric ulcer, and the patient was taken to the Chester Royal Infirmary for operation. Dr. R. S. Graham, assistant surgeon, conducted the operation along with Dr. W. G. Love, the senior house surgeon. A large perforation was found. During the later part of the operation a crisis occurred, the anæsthetist giving warning that the patient must be got off the operating-table immediately. Unless the wound was closed up forthwith the patient would die on the table. Dr. Graham formed his decision promptly, and sewed up the wound while Dr. Love injected saline. The patient's life was saved. Had Dr. Graham waited while the nurses counted the swabs and instruments the man would have died. Subsequently when they were counted, one instrument was found missing and the fact was duly reported.

Thirteen days after the first operation a second operation became necessary, the missing forceps was found in the body; there was no sepsis and it was easily removed, but the patient died. His widow brought an action against Dr. Graham and Dr. Love, relying upon the mere fact of the forceps being left in the body as evidence of negligence. In the circumstances already described and entirely undisputed there was plainly no evidence that the leaving of the forceps was due to want of care. When the defendants' evidence had been fully given the plaintiff's counsel put the widow's case as follows. First, it was negligence that the forceps was left in the body—a fact not rebutted by the defendants; secondly, it was negligence to close up the wound without waiting for the usual complete checking of the number of the 60 or 70 instruments employed; thirdly, there was negligence because the sister who should have been counting the instruments was in fact doing something else—namely, assisting Dr. Love to inject the saline. The learned judge had already stopped the case against Dr. Love against whom there was no possible evidence. He then asked the jury two questions: were they satisfied that Dr. Graham had been negligent, and, if so, were they satisfied that his negligence had caused the death? The jury, after a very brief absence, found for the defendant, Dr. Graham, for whom judgment was accordingly given.

The case is particularly instructive. Dr. Graham was faced with two grave alternatives at the crisis of a desperate operation. By delaying the final stages of the operation while the instruments were formally checked he would have sacrificed the patient's life, but would have protected his own professional reputation against any possibility of litigation. On the other hand, by closing the wound at once and by risking the presence of an instrument in the body, he would give the patient a chance of life though he would expose himself to possible proceedings. Dr. Graham rightly chose the second course and placed his patient's interests before his own. The patient gained some 13 days of life instead of being left to die upon the operating-table while the instruments were counted. No clearer instance could be cited of the doctor's duty being faithfully discharged, and yet his reward has been the anxiety and ordeal of a long awaited trial and the unenviable publicity for which even the clear verdict of the jury is hardly an adequate compensation.

Correspondence.

"Audi alteram partem."

MOTOR-CAR ACCIDENTS AND HOSPITALS.

To the Editor of THE LANCET.

SIR,—In your annotation last week you remarked on the pressure upon hospital beds caused by the rapid increase in the number of motor-car accidents. Being impressed by the number of these accidents I kept a record of the cases admitted to the male accident ward at the Northampton General Hospital during the seven months April to October, 1927. This period covers the season when such accidents are most common. The Northampton General Hospital is the principal hospital in the county, serving a town of some 90,000 inhabitants and a wide area of surrounding country.

During the period under review 70 adult male accident cases were admitted; of these patients nine were residents of districts outside a 20-mile radius from the town. Of these 70 casualties 50 were caused by motor-cycles either skidding or colliding with other vehicles; three were caused by cars upsetting or colliding; 11 were pedestrians knocked down by cars; four were cyclists knocked down by cars; one man fell off the back of a motor-van; one man was knocked off a ladder by a car. In this series were nine deaths, all due to head injuries. One man was transferred to another hospital suffering from paralysis due to fractured spine. Of the nine deaths seven were due to motor-cycle accidents and two were caused by a car knocking down a pedestrian.

Taking the 50 motor-cycle accidents we find:—

7 deaths and 1 case of paralysis; 6 cases of fractured femur; 7 cases of fracture of the leg bones, of which 4 were compound; 23 cases of concussion with or without scalp wounds; 1 case of compound fracture of the humerus; 1 case of fracture of both bones of the forearm; 1 case where the skin was stripped off the back of the hand, necessitating a pedicle graft from the skin of the abdomen. There were no amputations.

Cars colliding or upsetting were responsible for one fractured tibia, one fracture of ribs, and one fracture of a cervical vertebra. Cars running down pedestrians or cyclists caused two deaths, fracture of both femurs in one case, concussion in five cases, compound fracture of humerus one case, fractured ribs two cases.

These 70 patients occupied beds for an average period of 25½ days, the total cost to the hospital being £770. The total number of beds at this hospital is 225. After providing beds for special departments there are 50 beds available for adult male surgical cases. Reference to figures already given shows that, for at least seven months of the year, from eight to nine of these beds are continuously occupied by the victims of road accidents.—I am, Sir, yours faithfully,

C. C. HOLMAN, M.B., F.R.C.S.,
Hon. Surgeon, Northampton General Hospital.

Feb. 11th, 1928.

DISPOSAL OF THE DEAD.

To the Editor of THE LANCET.

SIR,—Your leading article last week stresses the care we take to prevent bodies being disposed of. No attention is drawn to the absence of any legal requirement compelling a body to be disposed of—a curious lacuna in our burial law. Most practitioners must have encountered difficult cases. I recall a lone widow, a patient, overpowered by grief and alcohol, who declined to consider her husband dead. She kept the body nice and warm with fires in the room and hot-water bottles in the bed. She poured beef tea into the unresisting mouth. At last, after about a week, during a moment when she was experiencing post-alcoholic depression, I "read the Riot Act," threatening to put in force the powers of the non-existent law by calling in the police, and an interment was effected. Surely we ought to copy countries in warmer climates and fix a limit of time for the disposal of a body.

I am, Sir, yours faithfully,

EDGAR L. COLLIS.
Welsh National School of Medicine, Cardiff, Feb. 13th, 1928.

INFLUENZAL PNEUMONIA OR ENTERICA?

To the Editor of THE LANCET.

SIR,—I am putting on record the following notes, chiefly in order to obtain information from others who may have observed similar cases recently.

A certain amount of influenzal pneumonia was being admitted to the Sunderland Infectious Diseases Hospital, when a case of enteric fever was notified that had been treated for pneumonia till typical spots came out and the Widal reaction was found to be positive 1 in 25. This case was followed by another which had been in contact with the first and also gave a 1 in 25 positive Widal; the patient died. Thereafter over a period of some weeks five patients were admitted as influenzal pneumonia with the following features in common: very ill on admission, moist sounds in lungs, epistaxis before or after admission, abdominal pain, slightly enlarged spleen, typical rose-pink spots on the sixth day fading four or five days later, by the eighth day temperature falling by lysis, feeling of exceptionally well-being by the tenth or eleventh day, though a few spots were still present

or cropping out. Convalescence was exceptionally rapid, the Widal reaction remaining negative for typhoid, paratyphoid A and B. Practically all the cases occurred in adults.

I would ask: Were these cases of atypical enteric fever or abortive enteric or were they cases of influenzal pneumonia with enteric-like spots which rapidly improved on removal from their homes to the purer country air? It is to be remembered that all were obviously very ill on admission, and all quickly improved on admission, though most were admitted on the third day of illness, it was striking how far more rapidly they improved than the cases of influenzal pneumonia in the same ward. On inquiry amongst practitioners in the town I heard of three apparently similar cases.—I am, Sir, yours faithfully,

EUSTACE THORP,
Deputy Medical Officer of Health, Sunderland.

Borough Sanatorium, Feb. 9th, 1928.

TREATMENT OF THE MALARIAS.

To the Editor of THE LANCET.

SIR,—I do not wish to take up your space by entering into a controversy upon the merits or demerits of plasmochin. Dr. Manson-Bahr has, I am afraid, missed the point I tried to enforce. My simile of the goose would, I thought, have appealed even to non-ornithological readers. In quoting me Dr. Manson-Bahr has not put in the full sentence I used. I did not say "will act better than either given alone," but "it is quite possible, of course, that . . . a combination of these two drugs will act better than either given alone, but time only and careful observations will show this." We may leave it at that. The subject is too young yet to dogmatise upon.

I am, Sir, yours faithfully,
G. CARMICHAEL LOW.

Brook-street, W., Feb. 10th, 1928.

THE PRESENT POSITION OF THE VOLUNTARY HOSPITALS.

To the Editor of THE LANCET.

SIR,—I do not wish to trespass personally further on your space, for there are many, I am sure, much more fitted to discuss this question. I must just say that Dr. Little attributes to me several statements I never made. With some of them I agree, with others not. The "20 per cent." statement was not mine. In regard to my "brick," as he genially calls it, I disown it, but I stick to it, if you will pardon me. If Dr. Little really wants to know, let him write to the medical superintendents of London poor-law hospitals and ask them how many spare beds they have. It is quite easy. I can give him a good start myself with 120 or so *extra beds filled* over the proper complement. My statement referred expressly to London. I said nothing about the rest of the country, not having personal knowledge about that; but I think it would be worth while to inquire how many of the supposed surplus beds are in country unions neither situated nor equipped to be useful to the chief centres of population. For the rest I leave it to your readers to judge how far Dr. Little has met the various points raised. I am, Sir, yours faithfully,

J. C. MUIR.

Whipps Cross Hospital, Feb. 10th, 1928.

RECURRENT COLDS.

To the Editor of THE LANCET.

SIR,—May I support Dr. A. L. Grant's letter in your last issue. I also have found, both in my own case and in the cases of others, that I can either prevent, abort, or cut short not only that dangerous condition, the common cold, but influenza also by means of Mr. J. E. R. McDonagh's symmetrical ureas.

I am, Sir, yours faithfully,
MACLEOD YEARSLEY.

Wimpole-street, W., Feb. 14th, 1928.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS

RESUMED DEBATE ON THE ADDRESS.

IN the course of the resumed debate in the House of Commons on Wednesday, Feb. 8th, on the motion that a humble Address be presented to His Majesty in reply to the gracious Speech from the Throne,

Mr. HARRIS said that he had great respect for the Minister of Health, for whatever his faults might be they realised that he had knowledge and experience. They had hoped for great reforms from him. Towards the end of 1925 the right hon. gentleman produced a most interesting and almost an historic document in which proposals were put forward for poor-law reform which were to form the basis for consideration and discussion by local authorities. In 1926 he (Mr. HARRIS) asked the Government when these proposals would take the form of an Act of Parliament, and he was informed that the Government wanted a year for consideration. They had had a year. They understood that the Poor-Law Bill would make its appearance during 1927, but they were told by the Minister of Health that although he was full of goodwill and good intentions the programme of the Government was so crowded with other matters that there was no time to deal with this important question. Nobody could say that the King's Speech this year disclosed an overcrowded programme. There would have been plenty of time to deal with the vital question of poor-law reform. It was not because the Government were not prepared. The Ministry had been thinking over the matter for two or three years, and there had been constant conferences with local authorities. He understood that there was something like general agreement. Why had the Government run away from this question? It was now stated that poor-law guardians were to stay and that there was to be no reform. Could not the Government with their big majority force through Parliament the scheme which they thought necessary? Did the Government want to leave the question to be dealt with by the Labour Party or the Liberal Party because they did not feel that they were competent to deal with it? Having dropped the Factory Bill, was it not about time that the Government really did some constructive work and put forward some scheme to deal with this thorny social problem? They would never get a solution of the problem of necessitous areas without taking in hand the reform of the poor-law. The present poor-law system worked badly throughout the country. London had a right to demand that the system of government should be changed. The present poor-law system was gradually breaking up. Through the machinery of old age pensions the old people were gradually being taken out of the poor-law, and, thanks to the extension of the Education Acts, a large number of children were now relieved through the machinery of the education authorities. All who now remained were the sick and the able-bodied. The original scheme was that the hospitals throughout the country should be transferred to the county authorities. That would be a very simple proposal to carry through, and would not require any complicated legislation. Even the able-bodied who required assistance were very largely, at any rate for a period, taken away from the local relief and were paid out of national funds through the machinery of the Insurance Act. Did it not seem the natural line of advance to remove from the local rates the able-bodied poor, or to use the phrase in a scheme put forward by the Ministry of Health, to correlate the system of relief with the machinery of unemployment insurance? If they took the able-bodied poor out of the control of the poor-law guardians, and removed the children from their care, and took away the old people, there was little work left for the guardians to do. The Government, he suggested, were under an obligation to the nation to translate into a Bill the scheme outlined by the Minister of Health in 1926.

Lieut.-Colonel ACLAND-TROYTE urged that one way in which the Government could help agriculture was by refraining from throwing more burdens on agriculturists by Orders like the Milk and Dairies Order, and for the Prohibition of Preservatives in Cream. The Government were quite ready to bring in Orders like these, but when they were asked to introduce an Order to prohibit the importation of condensed skimmed milk they would not do it.

Mr. GROVES raised the question of slum clearances in West Ham. Every month, he said, the medical officer of health of that borough reported that 80 per cent. of the houses inspected were not considered in all respects reasonably fit for human habitation. The existence of this slum property in big boroughs were undermining the health of our future citizens, and increasing the deaths among children. He believed that the Government were going to interest themselves in a national campaign for the cure of rheumatism.

He wished them luck, but there were many other and better ways in which Parliament could approach this question. In West Ham they had people sleeping five, six, seven, and even ten in one room. The less capable an area was of meeting its liabilities the more the National Exchequer imposed upon it in its schemes of social reform and public health. They were proud in West Ham of the way in which—irrespective of party—they had tried to approach the problem of restoring tuberculous people to some sort of normal health, but it cost them money. Their fever hospital was one of the finest in the country, but that hospital was overcrowded. The local hospitals could not take in the people who were sick; they had to be sent to poor-law institutions. Their sanatorium was also overcrowded, and they had a large number of people on the waiting list. They did not object to bearing these responsibilities, but if the Government really intended to approach the problem of relieving local burdens here was the place to start. In West Ham nearly 3000 scholars were fed daily by the education authorities. Otherwise they would go to school hungry. They would respond to any help that could be rendered them, because they could not for many more years continue to carry their present burdens on the shoulders of the local ratepayers.

Mr. SNELL said that they had hoped that the reform of the poor-law would be dealt with during the present session. Almost associated with that problem there was another about which he felt the deepest and keenest interest. A year or two ago he served on the Royal Commission dealing with Lunacy and Mental Disorders. They presented to the Government what they considered was a well-balanced, sober, and critical judgment upon a very difficult and a very moving problem, and they had hoped that the Government would have found time to deal with the unfortunate state in which many of their afflicted fellow citizens found themselves under present conditions. There was also the question of housing. Whatever credit they might take for the improvement in housing in recent years the problem could not be regarded in any way as solved.

Mr. Chamberlain's Reply.

The debate on the Address was resumed on the 9th, when Mr. CHAMBERLAIN, Minister of Health, said that it was not a fact that local government was breaking down. It was true that local government had been placed under a severe strain, but he thought it was going to come through. The effect of such conditions as those which existed in South Wales had produced a vicious circle to which attention had been called so often in that House. Unemployment meant increased local charges, and those charges meant a further handicap to the struggling industries of the district. That matter had attracted the anxious attention of the Government. It was obvious, however, that any relief to local rates which involved the shifting of the burden from the shoulders of the ratepayers to those of the taxpayers could not be confined to one or two areas in the country, and anything of that kind must be part of a general and far-reaching scheme. The time had not yet arrived when the Government could make any proposition to the House, but to those who had so often taken part in debates on necessitous areas it would at least come as a message of peace to know that the Government had not ruled out the possibility of some relief of this kind coming within the realm of practical politics.

Mr. LANSBURY said that the Minister of Health had the impudence to say that local government had not broken down. In unions such as Poplar the board of guardians did not exist. They had no power to administer. The nation would reap what it was sowing. Small-pox was a very deadly disease, and so were typhoid and other diseases. The reason why these diseases had not got a hold during the recent depression was because the physique of the people had been maintained. Food was one of the necessary things for a healthy body. The best safeguard against small-pox was——

Dr. WATTS: Vaccination.

Mr. LANSBURY said that vaccination without food would not save anyone from small-pox, and everyone knew it. He would like to ask the hon. Member, who was a good doctor, "Do you agree that muck and refuse should be left about the streets and be removed only once a week instead of twice a week"?—Dr. WATTS: No.

Mr. LANSBURY said that in that case the hon. Member was on his side. He believed that collectively the nation could do what it pleased in the matter of setting right social problems if it would give up the idea that mere wealth was the only thing that mattered.—The debate was adjourned.

PROTECTION OF DOGS BILL.

On Monday, Feb. 13th, Sir ROBERT GOWER presented the Protection of Dogs Bill, a measure "to prohibit the vivisection of dogs." The Bill, which is supported by Lieut.-Colonel Moore, Mr. Bromley, Mr. Macquisten, Mr. Thurtle, Captain Arthur Evans, Mr. Sexton, and Mr. Radford, was read a first time.

HOUSE OF COMMONS.

WEDNESDAY, FEB. 8TH.

Cost of Social Services.

Mr. BECKETT asked the Minister of Health the amount per head of population distributed on the following services for 1926–27: poor-law relief; old age pensions; National Health Insurance benefits; domiciliary poor-law relief; orphans' pensions; contributory widows' pensions; and contributory old age pensions.—Mr. CHAMBERLAIN replied: Information showing the amount expended, per head, of estimated population by poor-law authorities in England and Wales on poor-law relief in the year ended March 31st, 1927, is not yet available, but the amount for the year ended March 31st, 1926, was 20*s.* 7¼*d.*, including 8*s.* 1*d.* on outdoor relief in money and kind. The amount expended, per head of estimated population, by those authorities on outdoor relief in money and kind for the year ended March 31st, 1927, was 12*s.* 0¾*d.* As regards the remainder of the question the figures are:—

	s.	*d.*
Old age pensions under the Old Age Pensions Act, 1908–1924	13	6·7
National Health Insurance benefits	14	7
Orphans' pensions under Widows', Orphans' and Old Age Contributory Pensions Act, 1925 ..	0	1½
Widows' pensions under Widows', Orphans', and Old Age Contributory Pensions Act, 1925 ..	3	0

Old age pensions under the latter Act were not payable till Jan. 2nd, 1928.

Cost of Poor-law Maintenance.

Mr. BECKETT asked the Minister of Health the average daily number of persons maintained in workhouses; the average weekly cost per person; The total amount expended in connexion with the institutions; the number of adults maintained; the number of children under 16; and the total number of officers and staff employed in 1926–27.—Mr. CHAMBERLAIN replied: The latest information available as regards the maintenance of persons in general poor-law institutions in England and Wales (that is, institutions other than those wholly appropriated to the sick and mentally infirm, and establishments for children in cases where separate accounts are kept) relates to the year ended March 31st, 1926, and such of the particulars asked for as can be given, are, in respect of that year, as follows:—

Average daily number of inmates	134,418
,, weekly cost per inmate	24*s.* 2*d.*
Total expenditure in connexion with those institutions	£8,469,749

The average daily number of adults and children in these institutions has not been ascertained, but the numbers on Jan. 1st, 1926, were 123,373 adults and 11,075 children under 16 years of age. I regret that I am unable to give the numbers of the staff employed.

Voluntary Health Insurance Contributors.

Mr. RHYS DAVIES asked the Minister of Health the number of persons who had become voluntary contributors under the Health Insurance scheme consequent upon the passing of the Widows', Orphans', and Old Age Contributory Pensions Act; and, if so, how did the number compare with the actuary's calculations when the Act was passed?—Mr. CHAMBERLAIN replied: The number of persons who became up to the end of 1926 voluntary contributors, consequent on the passing of the Widows', Orphans' and Old Age Contributory Pensions Act, is estimated at 150,000, or about 10 per cent. more than the number assumed in the Government actuary's calculations for the purpose of the Bill.

THURSDAY, FEB. 9TH.

National Health Insurance Funds.

Mr. FENBY asked the Minister of Health what was the total amount of funds invested, directly or indirectly, on behalf of approved societies under the National Health Insurance Act on Dec. 31st in each of the years 1923, 1924, 1925, 1926, and 1927; and, if the information was not available for Dec. 31st, 1927, what was the amount of the funds so invested on the last available date.—Mr. CHAMBERLAIN replied: The approximate amount of funds invested, including the temporary investment of current balances, on Dec. 31st in each of the years specified was as follows:—

1923	£87 million	1926	£113 million
1924	101 ,,	1927	111 ,,
1925	114 ,,		

Slum Clearance Schemes.

Mr. WELLOCK asked the Minister of Health the number of slum clearance schemes sanctioned by his department for the various local authorities in Worcestershire, and the total amount of money granted by his department in each case.—

Mr. CHAMBERLAIN replied: Three slum clearance schemes have been confirmed in Worcestershire, two at Oldbury, and one in the city of Worcester. The annual Exchequer contributions in aid of the schemes have not yet been fixed, but on provisional figures they are estimated at £500 in respect of the three schemes, representing 50 per cent. of the estimated annual loss.

Stimulation of Milk Consumption.

Mr. BUXTON asked the Minister of Agriculture what steps he proposed to take to stimulate the consumption of milk in accordance with his recent statement to the Council of Agriculture.—Mr. GUINNESS replied: The Empire Marketing Board, after consultation with the Ministry of Agriculture, propose to undertake next April a publicity campaign in favour of the consumption of fresh milk. The campaign will extend over six months in the first instance, but it may be continued for a further considerable period, if the preliminary results are satisfactory and if producers' and distributors' organisations then show themselves prepared to devote to publicity for the same purpose a sum equal to that contributed by the Board. I need hardly add that I propose to do all I can to promote this scheme and ensure its success.

Mr. BUXTON: Will the right hon. gentleman endeavour to guard against a price-raising campaign because a rise of price occurred in the case of the fruit campaign?

Mr. GUINNESS: I do not think there ought to be any rise in price. As the right hon. gentleman is aware, there is a considerable excess of milk which cannot find a fresh market at the present time, and that could quite well be absorbed, I should imagine, without any serious effect in a rise in price.

Mr. MONTAGUE: Will the right hon. gentleman make representations to other Ministers as to the discouragement of the consumption of milk likely to be due to the announced reduction in miners' wages?

Colonel HOWARD-BURY: While encouraging the consumption of fresh milk will the right hon. gentleman discourage the importation of foreign condensed milk?

Lieut.-Commander KENWORTHY: Will the right hon. gentleman also discourage the consumption of alcohol?

Dr. DRUMMOND SHIELS: Will the right hon. gentleman see that in this advocacy of fresh milk some measures are taken to discriminate between tuberculosis-free milk and other milk which may be dangerous?

Mr. GUINNESS: There has been a most remarkable improvement in the condition of the milk supplies. The proportion of tuberculous milk is very much lower than it was a few years ago, and I do not think any more can be done than is being done at the present time in the way of improving our supply of milk and avoiding this danger.

Lieut.-Colonel FREMANTLE: Does the Minister propose in this publicity campaign to work with the Ministry of Health, who are naturally able to get at the medical channels of recommending milk and who have already a publicity campaign on hand?

Mr. GUINNESS: We will certainly work in conjunction with the Ministry of Health.

MONDAY, FEB. 13TH.

Beet-sugar Effluent and Public Health.

Major GEORGE DAVIES asked the Minister of Agriculture what progress, if any, had been made towards solving the problem of the disposal of the effluent from beet-sugar factories in such a way as to avoid any menace to the health, sporting facilities, and general amenities of the surrounding population.—Lord EUSTACE PERCY (President of the Board of Education), who replied on behalf of the Department of Scientific and Industrial Research, said: Satisfactory progress is being made with the experiments which are being conducted by the department in the biological treatment of the waste waters of beet-sugar factories. The data accumulated in the course of a semi-commercial scale trial at one of the factories during the manufacturing campaign just closed are now under consideration. While promising results are undoubtedly being obtained, it is as yet too early to say whether the experiments will lead to an economic solution of the problem. It is further understood that at most of the factories additional plant has been installed for the improvement of the effluent.

Miners' Nystagmus.

Mr. THOMAS WILLIAMS asked the Minister of Labour how many ex-miners who had suffered from nystagmus, and who were unable to obtain work, were receiving unemployment pay on the last date for which figures were available.—Mr. BETTERTON, Parliamentary Secretary to the Ministry of Labour, rep ied: I regret that no figures of the kind asked for are available.

Infection from Domestic Refuse.

Sir ROBERT THOMAS asked the Minister of Health whether any action had recently been taken, or was about to be taken, by his department to urge local authorities to use covered sanitary dustcarts, in order to minimise the risk of infection from refuse blown about the streets.—Sir KINGSLEY WOOD replied: Local authorities are increasingly making use of dustcarts with covers and are encouraged by my department to do so.

TUESDAY, FEB. 14TH.

Health of Railway Dining-car Attendants.

Sir ROBERT THOMAS asked the Minister of Transport whether he was aware that railway dining-car attendants were habitually required to be on the trains for periods up to 48 and 53 hours, with insufficient sleep and great irregularity of meals, in consequence of which there was a great deal of ill-health among these men, particularly tuberculosis and gastric disorders; and whether he would make inquiry of both the railway companies and the employees' representatives regarding the conditions of work on dining-cars.—Mr. BETTERTON (Parliamentary Secretary to the Ministry of Labour) replied: I am informed by the Great Western, London, Midland and Scottish, and London and North Eastern companies that there is no foundation for the statement that the railway dining-car attendants are habitually required to be on the trains for periods up to 48 and 53 hours. The conditions of service of the staff on these lines are the subject of agreements with the National Union of Railwaymen, except on a section of the London, Midland and Scottish. With regard to the Southern Railway, who do not directly employ dining-car staff, I am making further inquiries, and I will communicate with the hon. Member on the subject as soon as I have further information.

Medical News.

UNIVERSITY OF LONDON.—Dr. Donald Hunter has been recognised as a teacher of medicine at the London Hospital Medical College.

A Chair of Biochemistry, tenable at the London School of Hygiene and Tropical Medicine, is to be instituted, and applications are invited for this as well as for the Chair of Public Health at the same school, and the Chair of Pathology tenable at the London (Royal Free Hospital) School of Medicine for Women.

The University medal at the M.S. examination in December was conferred on Mr. R. M. Walker, of University College Hospital, and the medal at the M.B., B.S. examination in November on Mr. R. S. Pilcher of the same hospital.

A Carpenter medal, together with a money prize, of the value of £20 in all, will be awarded in 1928 by the Senate for a thesis of exceptional distinction in psychology submitted for the degree of Ph.D. between 1925 and 1928.

Applications for grants from the Dixon Fund must be received between April 1st and May 15th.

Applications for grants from the Thomas Smythe Hughes Medical Research Fund must be received between May 1st and June 15th.

The Laura de Saliceto Studentship for the advancement of cancer research, a part time appointment of the value of £150 a year, will be awarded shortly. Applications must be received before July 2nd.

The fifteenth election of Beit Fellows will take place on or about July 16th. Applications should be sent in before April 20th.

University College.—The special short course in anatomy and physiology, designed to meet the requirements of the Primary Fellowship Examination of the Royal College of Surgeons, will begin on Monday, March 5th, in preparation for the June examination. Particulars may be obtained from the secretary of the College.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At an ordinary meeting of the Council held on Feb. 9th, Sir Berkeley Moynihan, President, in the chair, the proposal to send examiners to Canada to hold a primary examination in anatomy and physiology for the Fellowship at Toronto in 1929 was further considered, and a revised scheme was approved. Instructions were given to the secretary to forward a copy of the revised scheme to the Canadian Medical Association for consideration.—Mr. C. H. Fagge was appointed Bradshaw Lecturer for the ensuing year.—Sir Berkeley Moynihan was appointed delegate to take part in the centenary celebration of the Faculty of Medicine, Cairo, and the International Congress of Tropical Medicine and Hygiene to be held at Cairo from Dec. 15th to 22nd.—It was reported that an election would take place on Thursday, July 5th, to fill the four vacancies on the Council occasioned by the retirement in rotation of Sir Anthony Bowlby, Sir D'Arcy Power, and Mr. F. J. Steward, and by the death of Mr. Thelwall Thomas; that notice of the election would be given to the Fellows by advertisement and by circular on March 9th; that March 19th would be the last day for the nomination of candidates; and that a

voting paper would be sent on April 3rd to every Fellow of the College whose address is registered at the College.—The Diploma of Fellow was conferred upon Harry Isaac Deitch, M.R.C.S., L.R.C.P., Middlesex and London Hospitals, who has previously passed the required examinations and has now complied with the bye-laws of the College.—The Council conferred diplomas of M.R.C.S. upon 164 candidates, whose names appeared in our issues of Feb. 3rd and 10th, as having received licences from the Royal College of Physicians. Thirteen, however, received their membership at previous meetings of the Council.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—At the monthly meeting of the Faculty held on Feb. 6th, Dr. Freeland Fergus, on behalf of Mr. J. B. Hilliard, presented to the Faculty the surgical pocket-case used by David Livingstone in his daily work in Africa. In making the presentation, Dr. Fergus quoted interesting particulars from a letter he had received from Mr. Hilliard, and deeply regretted the donor's inability to be present, owing to ill-health. Mr. Hilliard had been born in the Royal Infirmary, for his father, as cutler and instrument-maker to the infirmary, had at that time had an official residence in the precincts of the hospital. It had been at Mr. Hilliard's suggestion that Mr. W. Ewing Gilmour had presented to the Royal Faculty the instrument-case which had belonged to Dr. Beatty, R.N., surgeon on board the *Victory* at the Battle of Trafalgar. It had been characteristic of Livingstone to surmount difficulties; it was characteristic of him, after his day's work was done in the Blantyre Mill, to trudge all the way from Blantyre to Glasgow to attend lectures on chemistry, and then to return on foot to Blantyre after the lecture was over. The same spirit had been seen throughout his whole life. It had come natural for him to face all the privations and trials which he encountered in carrying out his great work as missionary, explorer, and philanthropist. The Faculty received the interesting and unique relic with acclamation.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.—A quarterly meeting was held on Feb. 7th, when Drs. David Duncan Main, Charles John Shaw, Ronald Gray Gordon, and Thomas Yule Finlay took their seats as Fellows of the College. Major Amir Chand, I.M.S., and Dr. James Thomson (Dundee) were elected Fellows of the College. Dr. David Lees, D.S.O. (Edinburgh), Dr. Premankur De (Calcutta), Dr. Edward Robt. Chas. Walker (Aberdeen), Dr. J. D. Allan Gray (Leith), Dr. Donald Ross (Lochgilphead), Dr. Chas. A. Basker (Bournemouth), Dr. Donald Jack (Edinburgh), and Dr. Alex. H. Rintoul (Kennoway, Fife) were elected members of the College.

WEST AFRICAN MEDICAL STAFF LIST.—The Crown Agents for the Colonies have published a revised edition of the West African Staff List, showing appointments and services of all medical officers up to Nov. 30th, 1927. The names are classified alphabetically, by grades, and by Colonies. The booklet may be obtained from Waterlow and Sons, Ltd., or from 1, Millbank, S.W. 1.

LAMBETH GENERAL LYING-IN HOSPITAL.—The Lord Mayor of London last week presided at the Mansion House at a meeting in aid of the appeal for £40,000 to rebuild and equip the nurses' home and out-patients' department of this hospital. Among the speakers were Mrs. Stanley Baldwin, the Earl of Birkenhead, and Lord Dawson of Penn. The last-named said that he was puzzled as to how the work of the hospital was carried on, the building being ancient, out of date, and hampered by every kind of mechanical difficulty." It was announced that £15,000 had then been obtained towards the required total.

MOORFIELDS ANNUAL DINNER.—The annual dinner of past and present students of the Royal London Ophthalmic Hospital was held at the Langham Hotel on Feb. 8th. Sir Wilmot Herringham presiding. About 80 students were present, and among the guests were Sir John Rose Bradford, Sir James Berry, Vice-Admiral Arthur Gaskell, Sir Matthew Fell, Prof. Elliot Smith, and Prof. H. Hartridge. In the course of the evening Mr. C. B. Goulden, dean of the school, presented a report on the year's work. The number of new students was 120, the total attending being 216. Among the successes gained by students last year were two diplomas of F.R.C.S. (Edin.) in ophthalmology. For the first part of the D.O.M.S. 43 students presented themselves and 28 passed; for the second part 42 presented themselves and 26 passed. A new departure had been made by obtaining the service of lecturers outside the hospital to give courses or occasional lectures. Dr. H. M. Traquair, of Edinburgh, had lectured on Perimetry, Prof. Hartridge on the Resolving Power of the Eye, and in the coming term Prof. Elliot Smith and Dr. James Kerr would give courses. It was hoped to extend the usefulness of the school still further in this direction by adapting a portion of the out-patients' department as a lecture room.

CHELSEA CLINICAL SOCIETY.—The fourth meeting will be held on Feb. 21st at 8.30 P.M. at the Hotel Rembrandt, Thurloe-place, S.W. Dr. E. C. Sundell and Dr. K. E. Eckenstein will open a discussion on What to Prescribe and Why. Guests are invited to the preceding dinner at 7.30 P.M.

ROYAL INSTITUTION.—On Tuesday next, Feb. 21st, at 5.15 P.M., Prof. J. S. Huxley begins a course of six lectures at the Royal Institution on the Behaviour of Animals. The Friday evening discourse on Feb. 24th will be delivered by Prof. George Gordon, on the Lives of Authors, and on March 2nd by Sir Farquhar Buzzard, on the Psychology of the Sick.

HARVEIAN SOCIETY OF LONDON.—The council has selected chronic streptococcal illnesses as the subject for the Buckston Browne Prize, which consists of a medal and £100 for the best essay sent in by Nov. 1st, 1929. The prize is open to any member of the medical profession under 45 years of age, registered in the British Isles or Dominions. Further particulars from the Hon. Treasurer, Dr. G. de Bec Turtle, 81, Cambridge-terrace, Hyde Park, London, W. 2.

UNIVERSITY OF PARIS.—An Easter holiday course of lectures will be held at the Clinique Médicale de l'Hôtel Dieu from March 29th to April 5th. The general subject will be the Blood, and lectures will be given under such titles as "Blood Pressure," "Blood Injections," "Blood Parasites," "Specific Hæmotherapy," and "Blood Groupings." The last lecture of the course will be a demonstration of the "cinematography of the blood."

UNIVERSITY OF VIENNA.—An intensive post-graduate course in neurology and psychiatry will be held from June 1st to July 31st. Systematic classes will be held in English at the neuropsychiatric clinic of Prof. Wagner von Jauregg and at the Neurological Institute of Prof. Marburg. The whole sphere of neurology and psychiatry will be covered in 300 hours, and the fee is 8214. Further information may be obtained from Docent Dr. E. S. Spiegel, Vienna, I, Falkestrasse 3. Passport visas are not required for British subjects.

THE Ninth International Congress of Psychology will be held at Yale University in August or September, 1929, under the presidency of Dr. J. McKeen Cattell, of New York. This is the first American meeting; the congress met in Oxford in 1923 and in Groningen in 1926. The hosts hope to be able to arrange for the appointment of foreigners to American lectureships near the time of the congress, so that foreign attendance can be facilitated.

COOKED FOODS AND HOSPITAL PRESSURE.—At the annual meeting of the Rushden (Northamptonshire) Trades Hospital Committee, Mr. C. H. Battle, in calling attention to the increase in the number of patients, stated that two principal factors in the growth were "road traffic and the popularity of cooked preserved foods."

BOMBAY MEDICAL COUNCIL.—The Council is constituted of six members nominated by the Governor of Bombay in council—namely, Sir Temulji Nariman, L.M., F.C.P.S. Bom., M.R.C.P. Edin.; Lieut.-Colonel R. Row, O.B.E., M.D., D.Sc. Lond., L.M.S., F.C.P.S. Bom.; Lieut.-Colonel R. F. Steel, M.B., Ch.B. Dubl., F.R.C.S. Edin., I.M.S.; R. V. Patel, M.D., F.C.P.S. Bom.; Major S. S. Vazifdar, L.M.S. Bom., M.R.C.P. Lond., I.M.S.; and Lieut.-Colonel W. M. Houston, M.B., B.Ch. Dubl., F.C.P.S. Bom., I.M.S.; and six elected members, namely, N. H. Choksy, L.M.S. Bom., F.C.P.S. Bom., M.D. Freib.; Y. G. Nadgir, M.S., F.C.P.S. Bom.; G. V. Deshmukh, L.M.S. Bom., M.D. Lond., F.R.C.S. Eng.; D. M. Gagrat, L.M.S. Bom.; J. Benjamin, Hospital Assistant; and Captain N. H. Kulkarni, M.C.P.S. Bom., B.M.S. At its meeting on Oct. 17th last the council considered the case of a practitioner who had been summoned to appear before it for displaying the signboards exhibiting the words: (1) Laboratory and Vaccine Institute. Blood, Sugar-Test and Examination of Urine, Sputum, Blood, etc.; (2) 606 Clinic., thereby advertising that he adopts in the treatment of certain diseases special lines of treatment. The charge was held to have been proved, judgment being postponed to the next meeting. The council considered an application for the registration of the qualification of L.M. Dubl., granted by the Coombe Hospital, Dublin. As this qualification is not registrable in the United Kingdom, it was not accepted. The council considered an application from the Mysore University for recognition of its L.M.P. examination and decided that it lacked authority to do so as the institution is not mentioned in the schedule of the Indian Medical Degrees Act, nor affiliated to one of the institutions therein mentioned. On consideration of a letter received from a practitioner, the council resolved that in the case of general practitioners the use of the words "physician and surgeon" may be allowed after their names.

Dr. Mary Barkas has been appointed medical superintendent of the Lawn, Lincoln, in succession to Dr. Jane Shortt.

Dr. D. Robertson Dobie was presented on Feb. 6th with a gift of money by his fellow-citizens on his retirement after 27 years practice in the town and district of Crieff.

RESEARCH IN TROPICAL MEDICINE.—The Wandsworth Scholarship, of the value of £370 per annum with travelling and subsistence allowance for work overseas, will shortly be awarded by the London School of Hygiene and Tropical Medicine. Applications must be received by April 30th.

THE LATE DR. ALEX. STUART, OF CRIEFF.—The death of Alexander Stuart, M.D. Edin., is felt by a wide circle in the county of Perth where he practised all his life. Dr. Stuart qualified in Edinburgh in 1892, and held resident appointments at Leith Hospital. He was medical officer to the post-office, to the parish of Fowlis Wester, and referee for a number of insurance offices.

CALEDONIAN MEDICAL SOCIETY.—The Jubilee of this society will be celebrated in Edinburgh on Feb. 23rd and 24th under the joint presidency of Dr. W. A. Macnaughton and Dr. S. Rutherford Macphail, the two surviving founders. The jubilee dinner will take place in the hall of the Royal College of Physicians, Queen-street, at 7.15 P.M. on Feb. 23rd. The annual meeting will be held at the Royal College of Surgeons Hall, Nicolson-street, at 11 A.M. on Feb. 24th, while at 4 P.M. on the same day the University of Edinburgh are giving a reception.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED FEB. 4TH, 1928.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 386 (last week, 370); scarlet fever, 1938; diphtheria, 1623; enteric fever, 62; pneumonia, 1533; puerperal fever, 64; puerperal pyrexia, 128; cerebro-spinal fever, 14; acute poliomyelitis, 12; acute polioencephalitis, 1; encephalitis lethargica, 33; dysentery, 5; ophthalmia neonatorum, 91. There was no case of cholera, plague, or typhus fever notified during the week.

The cases of small-pox were notified from the following 23 counties: London, 5 (Camberwell 1, Southwark 4); Bedford, 10 (Bedford); Chester, 1 (Crewe); Derby, 16; Durham, 94; Gloucester, 1 (Mangotsfield); Hertford, 1 (Watford); Lancaster, 18; Leicester, 1 (Hinckley); Lincoln, Parts of Lindsey, 10 (Lincoln); Middlesex, 1 (Hendon); Northumberland, 7; Nottingham, 13; Southampton, 1 (Southampton); Stafford, 1 (Stoke-on-Trent); Warwick, 19 (Birmingham 11); Worcester, 1 (Worcester); Yorkshire, East Riding, 1 (Hull); North Riding, 18 (Middlesbrough 16); West Riding, 69; Brecknock, 10 (Brynmawr); Glamorgan, 34; Monmouth, 54.

The number of patients at the Infectious Hospitals of the Metropolitan Asylums Board on Feb. 7th–8th was as follows:—Small-pox, 14; scarlet fever, 1759; diphtheria, 2570; enteric fever, 24; measles, 1363; whooping-cough, 160; puerperal fever, 19 (plus 18 babies); encephalitis lethargica, 75; poliomyelitis, 2; "other diseases," 49. At St. Margaret's Hospital there were 12 cases of marasmus and 12 babies (plus 8 mothers) with ophthalmia neonatorum.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 2 (1) from enteric fever, 98 (45) from measles, 9 (1) from scarlet fever, 32 (5) from whooping-cough, 52 (8) from diphtheria, 41 (5) from diarrhœa and enteritis under two years, and 81 (8) from influenza. The figures in parentheses are those for London itself. Of the 53 fatal cases of measles outside London, 14 were reported from Bristol, 10 from Manchester, 4 each from Salford, Sheffield, and Plymouth, 3 from Warrington, while the figures from Glasgow and Dublin for the same week were 27 and 13 respectively. The death from enteric fever outside London was reported from Derby. The number of stillbirths registered during the week was 270 in the great towns, including 42 in London.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY, Feb. 21st.—5.30 P.M., GENERAL MEETING OF FELLOWS. Ballot for election to the Fellowship. 8.30 P.M., PATHOLOGY. Communications: S. L. Baker: The Histology of the Early Lesion of the Rous Sarcoma. G. W. M. Findlay: Pellagra in the Rat. A. B. Porteous and W. D. Newcomb: Tuberculosis and Amyloid Disease.

WEDNESDAY.—5 P.M., COMPARATIVE MEDICINE. Paper: Dr. H. P. Bayon: The Pathology of Certain Avian Diseases Compared with that of Analogous Morbid Conditions in Man and Animals. Prof. G. H. F. Nuttall will open the discussion. Subsequent speakers will include Prof. J. B. Buxton and Dr. H. H. Scott.

THURSDAY.—8.30 P.M., UROLOGY. Paper: Mr. Swift Joly: The formation of Urinary Calculi.

FRIDAY.—8 P.M., EPIDEMIOLOGY. Papers: Dr. Reginald Miller: Some Public Health Aspects of Juvenile Rheumatism. Dr. J. T. Clarke: The Pathogenesis of Rheumatic Fever in its Climatological Relationship to a Possible Insect Carrier. 8.30 P.M., DISEASES IN CHILDREN, SURGERY. Special discussion on Chronic Appendicitis in Children. Openers: Dr. Robert Hutchison (Disease in Children); Mr. A. J. Walton (Surgery).

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, W.

MONDAY, Feb. 20th.—9 P.M., Dr. F. J. Poynton: Rheumatic Heart Disease in Childhood. (Lettsomian lectures (1).)

ROYAL STATISTICAL SOCIETY, Royal Society of Arts, John-street, Adelphi, W.C.

TUESDAY, Feb. 21st.—5.15 P.M., Dr. T. H. C. Stevenson: The Vital Statistics of Wealth and Poverty.

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASE, 11, Chandos-street, Cavendish-square, W.

FRIDAY, Feb. 24th.—8.30 P.M., General meeting. Papers will be read by Prof. Louise McIlroy and Dr. Margaret Rorke on the Antenatal Treatment of Venereal Disease—Gonorrhœa. A discussion will follow.

MEDICO-LEGAL SOCIETY, 11, Chandos-street, Cavendish-square, W.

THURSDAY, Feb. 23rd.—8.30 P.M., Prof. Louise McIlroy: Influence of Parturition upon Insanity and Crime.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

MONDAY, Feb. 20th.—5 P.M., Erasmus Wilson Lecture: Mr. C. E. Shattock.

WEDNESDAY.—5 P.M., Erasmus Wilson Lecture: Mr. C. P. G. Wakeley.

FRIDAY.—5 P.M., Erasmus Wilson Lecture: Mr. W. D. Newcomb.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Feb. 20th, to SATURDAY, Feb. 25th.—FELLOWSHIP OF MEDICINE LECTURE, Medical Society of London, 11, Chandos-street, Cavendish-square, W. Mon., 5 P.M., Dr. A. F. Tredgold: The Nature of Mental Deficiency.—LONDON LOCK HOSPITAL, Dean-street, W., Clinical demonstration by Major Victor Corbett. Tues., 3 P.M. Limited to 12.—ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, Charing Cross, W.C. Thurs., 5 P.M., Lecture-demonstration by Mr. A. Caddy: Corneal Ulcers and Their Treatment.—ALL SAINTS' HOSPITAL, Vauxhall Bridge-road, S.W. Sat., 3 P.M., Clinical demonstration in Urology by Messrs. Attwater, Loughnane, Coyte, and Levy. The above are free to all members of the medical profession.—LONDON LOCK HOSPITAL, Dean-street, W. Special post-graduate course in Venereal Diseases for four weeks.—QUEEN MARY'S HOSPITAL, Stratford, E. Intensive course in Medicine, Surgery, and the Specialties for two weeks.—THE NATIONAL HOSPITAL, Queen-square, W.C. Special course in Neurology. Lectures, demonstrations, including pathology.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham.

MONDAY, Feb. 20th.—2.30 to 5 P.M., Medical, Surgical, and Gynæcological Clinics. Operations.

TUESDAY.—2.30 to 5 P.M., Medical, Surgical, Throat, Nose, and Ear Clinics. Operations.

WEDNESDAY.—2.30 to 5 P.M., Medical, Skin, and Eye Clinics. Operations.

THURSDAY.—11.30 A.M., Dental Clinics. 2.30 to 5 P.M., Medical, Surgical, and Ear, Nose, and Throat Clinics. Operations.

FRIDAY.—10.30 A.M., Throat, Nose, and Ear Clinics. 2.30 to 5 P.M., Surgical, Medical, and Children's Diseases Clinics. Operations.

On Tues., at 2.15 P.M., and Fri. at 2.30 P.M., there will also be demonstrations of medical and surgical cases by Dr. A. J. Whiting and Mr. E. Gillespie respectively.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.

MONDAY, Feb. 20th.—11 A.M., Mr. Tyrrell Gray: Surgical Wards. 2 P.M., Dr. Ironside: Medical Out-patients. 2 P.M., Mr. Simmonds: Surgical Out-patients. 4.30 P.M. Dr. Snowden: Conversion Neurosis (lecture).

TUESDAY.—11 A.M., Mr. Endean: Demonstration of Venereal Diseases. 2 P.M., Mr. Addison: Operations. 2 P.M., Mr. Hambien Thomas: Throat, Nose and Ear Department.

WEDNESDAY.—10 A.M., Dr. Burnford: Medical Wards. 2 P.M., Mr. Tyrrell Gray: Operations. 2 P.M., Dr. Scott Pinchin: Medical Out-patients.
THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Department. 2 P.M., Mr. Donald Armour: Operations. 3 P.M., Sir Henry Simson: Gynæcological Wards. 4.30 P.M., Mr. Simmonds: Surgical Emergencies (lecture).
FRIDAY.—10 A.M., Dr. Pritchard: Medical Wards. 10.30 A.M., Dr. Dowling: Skin Department. 2 P.M., Dr. Shaw: Medical Out-patients.
SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy Department. 10 A.M., Dr. Owen: Medical Diseases of Children.
Daily, 10 A.M. to 5 P.M., Saturdays 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Depts.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James's Hospital, Ouseley-road, Balham, S.W.
WEDNESDAY, Feb. 22nd.—4 P.M., Major M. Sinclair: Radiographic Values in Bones and Joints. (Lantern demonstration.)

NATIONAL HOSPITAL, Queen-square, Bloomsbury.
MONDAY, Feb. 20th.—2 P.M., Dr. Hinds Howell: Out-patient Clinic. 3.30 P.M., Dr. Riddoch: Headaches: Their Causes and Treatment.
TUESDAY.—2 P.M., Dr. Walshe: Out-patient Clinic. 3.30 P.M., Mr. Armour: Head Injuries.
THURSDAY.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., Dr. Gordon Holmes, Pituitary Tumours (1).
FRIDAY.—2 P.M., Dr. Adie: Out-patent Clinic. 3.30 P.M., Dr. Martin: Muscular Atrophies.

HOSPITAL FOR SICK CHILDREN, Great Ormond-st., W.C.
THURSDAY, Feb. 23rd.—4 P.M., Dr. R. Hutchison: Diet after the Period of Infancy.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.
TUESDAY, Feb. 21st.—3.15 P.M. (at the Royal Chest Hospital), Dr. P. Kerley: Intrathoracic Tumours.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.
TUESDAY, Feb. 21st.—5 P.M., Dr. G. B. Dowling: Seborrhœa. Seborrhœic Dermatitis.
THURSDAY.—5 P.M., Dr. Haldin-Davis: Pruritus. Prurigo. Lichenification.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn-road, W.C.
FRIDAY, Feb. 24th.—4 P.M., Dr. J. D. McLaggan: The Treatment of Chronic Suppurative Middle Ear.

ST. PAUL'S HOSPITAL, Endell-street, W.C.
THURSDAY, Feb. 23rd.—4.30 P.M., Mr. Kenneth Walker: Methods of Diagnosis in Renal Conditions.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.
WEDNESDAY, Feb. 22nd.—4.30 P.M., Prof. J. E. W. MacFall: Some Aspects of Legal Live Birth.

CHADWICK PUBLIC LECTURES.
THURSDAY, Feb. 23rd.—5.15 P.M. (in the Hastings Hall, British Medical Association, Tavistock-square, W.C.), Sir W. Heaton Hamer: Epidemiology: the Return of the Hippocratic Method.

PEOPLE'S LEAGUE OF HEALTH.
WEDNESDAY, Feb. 22nd.—6 P.M. (at the Medical Society's Rooms, 11, Chandos-street, Cavendish-square, W.), Sir Robert Armstrong-Jones: Fatigue and Sleep.
FRIDAY.—6 P.M., Dr. Harry Campbell: Food of Mankind, Historically and Geographically.

ST. MARY'S HOSPITALS, Manchester.
FRIDAY, Feb. 24th.—4.30 P.M., post-graduate lecture (at the Whitworth-street West branch), Dr. Lapage: Tuberculosis in Infancy and Early Childhood.

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINICS.
FRIDAY, Feb. 24th.—3.30 P.M., Mr. Kerr: Earache.

Appointments.

DUKE-ELDER, W. S., M.D. St. And., F.R.C.S. Eng., has been appointed Assistant Surgeon to the Royal London Ophthalmic Hospital.
ECCLES, W. MCADAM, M.S., M.B. Lond., F.R.C.S. Eng., Consulting Surgeon to St. Bartholomew's Hospital, and an Examiner in Surgery in the University of Glasgow.
HOWELL, B. WHITCHURCH, F.R.C.S. Eng., Honorary Orthopædic Surgeon to the Harrow Hospital.
Certifying Surgeons under the Factory and Workshop Acts: CHAPELLE, E., M.B., Ch.B. Edin. (Tillicoultry District of Clackmannan); RUSSELL, W. F., M.B., B.Ch. Dub. (Holyhead); SCOTT, R. C., M.D., Ch.B. Edin. (Portree District of Inverness); and SHORE, P. A., L.R.C.P. L.R.C.S. Edin., L.R.F.P.S. Glasg. (Cannock District of Stafford).

Vacancies.

For further information refer to the advertisement columns.

Blackburn County Borough.—M.O.H., &c. £1000.
Bootle Borough Hospital.—Sen. M.O. Also two Jun. M.O.'s. At rate of £150 and £125 respectively.
Bradford, Municipal General Hospital, St. Luke's.—H.P.'s. and H.S.'s. Each at rate of £200.
Bristol City and County of.—Chief Asst. M.O.H., &c. £800. Also Asst. M.O.H. £750.
Bristol Royal Infirmary.—H.P.'s, H.S.'s. Dental H.S., &c. Each at rate of £80.
Bury Infirmary.—Second H.S. At rate of £175.
Cancer Hospital, Fulham-road, S.W.—Surg. Reg.
Croydon Union.—Dental Surg.
Cyprus.—District M.O. £600.
Exeter, Royal Devon and Exeter Hospital.—Res. Cas. O. At rate of £100.
Hereford County and City Mental Hospital.—Second Asst. M.O. £350.
Hertford County Hospital.—Res. Surg. O. £250. Also H.P. At rate of £150.
Hong-Kong Government.—Radiologist Electrologist. £740.
Hospital for Sick Children, Great Ormond-street, W.C.—Asst. Pathologist and Research Fellow. £450. Also Jun. Cas. O. (part-time). At rate of £75.
Lambeth Parish Hospital, Brook-street, Kennington, S.E.—Jun. Asst. M.O. £200.
Leicester Royal Infirmary.—Two H.P.'s. At rate of £125.
Leicestershire County Council.—Asst. M.O.H., &c. £600.
Lincoln City, and County Borough of.—M.O.H. £1000.
Lincoln County Hospital.—Jun. H.S. At rate of £150.
L.C.C. Mental Hospitals Service.—Eighth Asst. M.O. £300.
L.C.C. Public Health Dept.—Temporary Asst. Aurist. 34*s.* 6*d.* per half day.
London School of Hygiene and Tropical Medicine, Malet-street, W.C.—Wandsworth Scholarship. £370.
London Temperance Hospital, Hampstead-road, N.W.—Res. M.O. At rate of £175.
Maidstone, Kent County Ophthalmic and Aural Hospital.—Ophth. H.S. At rate of £200.
Miller General Hospital for South-East London, Greenwich-road, S.E.—Hon. P. to Special Dept. for Children.
Nottingham and Midland Eye Infirmary.—H.S. £200.
Omdurman, C.M.S. Hospital.—Doctor required.
Plymouth, Homœopathic and General Hospital.—H.S. At rate of £100.
Prince of Wales's General Hospital, Tottenham.—Radiographer.
Queen Charlotte's Maternity Hospital, Marylebone-road, N.W.—Asst. Res. M.O. Also District Res. M.O. Each at rate of £80.
Queen's Hospital for Children, Hackney-road, E.—Res. M.O. £200. Also two H.P.'s. Each at rate of £100. Also Clin. Asst. 5*s.* per attendance.
Richmond, Surrey, Royal Hospital.—Jun. H.S. At rate of £100.
Royal Chest Hospital, City-road, E.C.—Asst. Tub. O. £600.
Royal Free Hospital School of Medicine for Women.—University Chair of Pathology. £1000.
Royal Naval Dental Service.—Five Dental Surgeons.
St. George's Hospital, S.W.—Asst. Radiologist. £100.
St. George's Hospital Medical School, Hyde Park Corner, S.W.—Research Worker. £500.
St. Giles' Hospital, Camberwell.—Locum Tenens Asst. M.O. £7 7*s.* per week.
St. John's Hospital for Diseases of the Skin, Leicester-square, W.C. Hon. Med. Reg.
Samaritan Free Hospital for Women, Marylebone-road, N.W.—H.S. At rate of £100.
Sheffield, Jessop Hospital for Women.—Asst. H.S. £100.
Tunbridge Wells and Counties General Hospital.—H.S. £160.
Western Ophthalmic Hospital, 155, Marylebone-road, N.W.—Sen. and Jun. Hon. Anæsthetist. £1 1*s.* per visit.
Whipps Cross Hospital, Whipps Cross-road, Leytonstone, E.—Asst. M.O. £300.
Willesden Municipal Hospital, Brentfield-road, Neasden, N.W.—Res. M.O. £150.
Woolwich and District War Memorial Hospital, Shooter's Hill, S.E.—Hon. Anæsthetists.

The Secretary of State for the Home Department announces a vacancy for a Medical Referee under the Workmen's Compensation Act for the districts of the Chester, Holywell and Flint, and Mold County Courts. Application for the post should reach the Private Secretary, Home Office, Whitehall, S.W. 1, not later than March 3rd.

The Chief Inspector of Factories announces the following vacant appointments for Certifying Factory Surgeons: Whitehaven (Cumberland); Chepstow (Monmouthshire); Clynderwen (Pembrokeshire); Montgomery (Montgomeryshire); Oakham (Rutlandshire); King's Lynn (Norfolk); and Newburgh (Fifeshire).

Births, Marriages, and Deaths.

BIRTHS.

ANDERSON.—On Feb. 11th, at a nursing home, Bedford, the wife of Dr. J. J. H. Anderson, of a son.
BURN.—On Feb. 6th, at Old Friars, Richmond, Surrey, the wife of Dr. J. S. Burn, of a son.

DEATHS.

BASCOMBE.—On Feb. 5th, at The Avenue, Colchester, Edwin Cecil Dare Bascombe, M.R.C.S., L.R.C.P. Lond., L.D.S. Eng.
BENNETT.—On Feb. 7th, at Morpeth-mansions, S.W., Francis Dillon Bennett, M.R.C.S., L.R.C.P., Chevalier de la Légion d'Honneur.
COHEN.—On Jan. 4th, at his residence, Macleay-street, Sydney, N.S.W., Algernon Aaron Cohen, M.D., M.R.C.S. Eng., in his 72nd year.
LLOYD JONES.—On Feb. 6th, 1928, at "The Lings," Radcliffe-on-Trent, Samuel Lloyd Jones, M.R.C.S., L.R.C.P., Medical Superintendent of the Notts County Mental Hospital for 19 years. During the war Lieut.-Colonel in the R.A.M.C.

*N.B.—A fee of 7*s.* 6*d.* is charged for the insertion of Notices of Births, Marriages, and Deaths.*

Notes, Comments, and Abstracts.

THE GORILLA'S BED.

Dr. N. A. Dyce Sharp, in a paper contributed to the *Proceedings* of the Zoological Society, Part 4, 1927, describes a habit of the great African anthropoids that has very rarely been recorded. Both chimpanzees and gorillas, he says, have a most human love for a bed. All chimpanzees sleep in trees 30 or 50 feet above the ground, where they make small untidy beds something like a stork's nest, but the male gorilla sleeps on the ground, and his bed is a far more elaborate affair. It is situated where he can see the nests of his wives and young offspring, whom he directs, according to some accounts, to their respective trees. Dr. Dyce Sharp found that he could always see the wives' beds from every old male's couch in which he had lain. Considering that no gorilla ever sleeps twice in the same bed, he goes to a great deal of trouble in making it. He selects carefully a site where he can break down several young saplings: over these he places stout branches brought from neighbouring trees, and covers this frame with a foot's thickness of twigs and leaves. The completed bed may measure 9 ft. by 6 ft., and always has a stout tree at one side of it, against which the gorilla may lean. The wives select a fork in the tree assigned to them, and make their beds with material from within reach. The only time a gorilla sleeps two nights in the same bed is when a newly born infant is too weak to hold on to the hair of its mother's chest. Dr. Dyce Sharp once came on a party which had been cut off on a small island during the rains. In spite of the confined space, they insisted on making themselves fresh beds each night, even though many of them were contiguous. The old male moved a few yards each night, while the females shifted to another fork of the same tree. The gorilla is a vegetarian and moves chiefly on all fours, so he does not resemble man very closely, except in this habit and in the length of his female's gestation period. Man, when living in the wilds, does not always insist upon a fresh bed each night, but it is recognised that the most efficient and best-adapted soldiers and travellers are those who expend what may seem a disproportionate amount of energy in making themselves comfortable at night. An appreciation of the value of sound sleep, and the necessity of evading enemies, are no doubt the basis of this queer instinct of the gorilla.

ILLUMINATION FOR HAND-TYPESETTING.

LAST year a report was issued on the optimum illumination required for typesetting by hand ("composing") in the printing industry. This was found to be approximately 20 foot-candles, an amount much higher than that usually found in printing offices at the present time. In that report no attention was paid to the almost equally important matter of distribution of the light over the working area. This is the subject of the present report[1] which compares the efficiency of different systems of lighting in common use. Local lighting by itself does not compare favourably with the other methods employed, the compositors finding the glare from the lamps very trying. A special local lighting fitting designed to eliminate glare is more accurately described as localised general lighting and the production, when this fitting was used, was practically equivalent to the average production with indirect lighting. It must be understood that the experiments were made with the same illumination on the working plane from each system tested. This was regulated to give about 10 foot candles—i.e., only about half the optimum—so as to allow for a rise as well as a fall in the efficiency of working. The general conclusion is that a considerable amount of general illumination in composing rooms is necessary to secure the best results. It is important to reduce glare, which is especially apt to be troublesome when the type is new. A combination of general and local lighting in which the two types of source will give approximately the same proportion of the total illumination is to be recommended. When glare from new type is complained of it is suggested that some method should be tried for partially ageing the type before it is put into use.

BENACOL IN THE TREATMENT OF PRURITUS ANI.

THIS distressing complaint, particularly common in private practice, is usually approached with apprehension, for the cause is rarely apparent. The majority of cases have already been examined in vain for hæmorrhoids, fissures, worms, excess of streptococci in the fæces, glycosuria, tabes, and a heterogeneous group of other known causes, so that little remains but to treat symptomatically and in rare cases to cure permanently. Most ointments have already received a trial, and if X rays and radium have now failed, the physician may have to acknowledge that he can do no more. Surgical measures include the injection of absolute alcohol at the muco-cutaneous junction, and the excision of affected areas, Whitehead's operation. Both these procedures necessitate general anæsthesia, the former perhaps on several occasions, and both may give relief for a short time only.

According to three American authors[1] the injection of benacol, which, they state, consists of "equal parts of para-amino-benzoyl-ethanol-benzoate and phenmethylol in equal parts of rectified sweet almond oil," may be helpful. The technique does not appear to differ from that advised for the alcohol injections, but no anæsthetic is required, and the treatment is quite painless if not more than 1-2 c.cm. of oil are injected slowly. No complications were met with in 25 cases. A brief analysis of these, as regards sex, ages, duration of symptoms, and number of injections, is submitted, and it arouses confidence to observe that not a single cure is claimed. Two showed "very marked improvement," while 22 are described as "improved," and one as "slightly improved." A drug with this record deserves very careful and prolonged trial, even though, as we suspect, the results are simply due to the contained phenyl radicle, and not to the complex structure of the whole molecule.

THE NATIONAL CHILDREN'S HOME AND ORPHANAGE.

THE story of the fifty-eighth year of the National Children's Home is told in a little book et called "Builders of the City," which is fully illustrated by photographs of children, great and small, at work and play. The examples of cases admitted during the year show that there is a refreshing absence of red tape when the need is urgent. Nearly 20,000 children have been through the various branches, of which there are now 30. The basis of organisation is the family group, but the ten larger ones are self-contained little villages, containing between 100 and 300 children each. The Nautical School at Penarth prepares boys for the navy and merchant service, and the Chipping Norton branch is a special home for crippled children. At Harpenden is a children's sanatorium, while there is a convalescent home at Ribblesdale. A new children's hospital at Highbury, provided by the gifts of the Young Leaguers' Union, was started during 1927 and will be opened this year. As most of the hundreds of young men and women leaving the homes every year have no parents or friends to start them off in their careers, vocational training plays a large part, and they are taught thoroughly the trade of their choice: bootmaking, carpentering, tailoring, baking, farming, or whatever it may be. The report is in itself a fine tribute to the work of the children's home printing house. The girls are trained as shorthand typists, teachers, nurses, dressmakers, and in the various branches of household work. At the end of last year there were 3976 children under supervision, and 66 emigrated to Canada during 1927. The dietary has been carefully revised and brought into line with modern requirements.

THILOCOLOGNE.

THE advantages of starting induction of anæsthesia with a vapour that is not unpleasant to the patient are very obvious. For most people the very dilute vapour with which an anæsthetist begins an open administration is efficient in ensuring free and willing inspiration. It is not always satisfactory, however, especially with young children, and drops of pleasant scent of some kind or another are often used as a preliminary lure. Thilocologne, which is ethyl chloride impregnated with eau-de-Cologne, offers a convenient method of attack in these circumstances. The ethyl chloride smell is effaced with remarkable success, the spray smelling almost completely of eau-de-Cologne, and at the same time the ethyl chloride's activity is not interfered with. The spraying nozzle is not as satisfactory as some other forms, but this can doubtless be improved. Thilocologne may be obtained from Messrs. W. Bredt, 41, Great Tower-street, London, E.C. 3.

SAFEGUARDING OF KEY INDUSTRIES.

THE Treasury have made an Order under Section 10 (5) of the Finance Act, 1926, exempting crude cocaine from key industry duty from Feb. 11th to Dec. 31st, 1928, and continuing till the latter date the exemption from duty (among other drugs) of barbitone, dial, didial, ethylene bromide, furfurol, guaiacol carbonate, hydroquinone, lead tetra-ethyl, lipoiodin, methyl sulphonal, phenacetin, phenazone, phytin piperazine, pyramidon-veronal, salol, and sulphonal.

[1] The Effect of Different Systems of Lighting on Output and Accuracy in Fine Work (Typesetting by Hand). By H. C. Weston, M.I.Inst.E., and A. K. Taylor, A.C.G.I., M.I.E.E., A.M.I.C.E. Joint Report of the Industrial Fatigue Research Board and the Illumination Research Committee. London: H.M. Stationery Office. 1928. 4*d*.

[1] F. C. Yeomans, R. V. Gorsch, and J. L. Mathesheimer, New York Med. Jour. and Record, Jan. 4th, 1928.